## Test Paper Session 2017-18

CLASS 10 SUBJECT Mathematics	CHAPTER- 1
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Ans1	1000	1
Ans2	$xy^2$	1
Ans3	13	1
Ans4	24	1
Ans5	12	2
Ans6	7x 6 x 5 x 4 x 3 x 2 x 1 + 7	2
	= 7 (6x 5x 4x 3x 2x 1+1)	
	$= 7 \times 721 \times 1$	
	Because it has more than 2 factors so, it is a composite number.	
Ans7	Similar to Question 6	2
Ans8	$a = 2^5 x 3^7 x 5^2 x 7$	2
	$b = 2^3 x 3^2 x 5^6 x 11$	
	$HCF=2^3 \times 3^2 \times 5^2$	
	$LCM=2^5 \times 3^7 \times 5^6 \times 7 \times 11$	
Ans9	Similar to Question 6	2
Ans10	LCM of 9,12,15 in 180 min.	2
	The bells will tolltogether again after 3 hrs.	
Ans11	$\frac{91}{1250} \times \frac{91}{5^4 2^1} = 0.0728$	2
Ans12	Let $\frac{1}{2+\sqrt{3}}$ is rational	2
	$\frac{1}{2+\sqrt{3}} = \frac{a}{b}$ HCF of a and b in 1	
	$2+\sqrt{3}$ b $b^{-2a}$	
	$\sqrt{3} = \frac{b^2 2a}{a}$	
	$\frac{b-2a}{a}$ is a rational no. as a, b are integers	
	$=\sqrt{3}$ in rational	
	But $\sqrt{3}$ is irrational	
	$\therefore$ It is a contradiction	
	$\therefore$ ourassumption is wrong that $\frac{1}{2+\sqrt{3}}$ is rational $\therefore$ it is irrational no.	
Ans13	Similar to Question 12	3
Ans14	Let a is any +ve odd integer, Let $b = 4$ By E.D.L	3
711314	$a = bq + r$ , $0 \le r < b$	5
	Let $b = 4$	
	$a = 4a + r, 0 \le r < 4$	
	a = 4a + 0 = 4a even	
	a = 4a + 2 odd	
	a = 4a + 2 even	
	a = 4a + 3 odd	
	$\therefore a = (4a+1), (4a+3)$ H.P	
Ans15	(1) 608,544	3
7	By E.D.L.	Ū
	$608 = 544 \times 1 + 64$	
	Now, 544, 64	
	By E.D.L.	
	$544 = 64 \times 8 + 32$	
	Now, 64, 32	
	$\therefore 64 = 32 \times 2 + 0$	
	:HCF= 32	
	(ii) Same as part (i)	
	(iii) Same as part (ii)	
Ans16	HCF = 9 LCM = 90, $a = 18, b = ?$	3
	$a \times b = HCF \times LCM$	
		1

	18  x b = 9  x  90	
	b =45	
Ans17	$(\sqrt{3} + \sqrt{2}is)$	3
	Prove $\sqrt{3}$ is irrational by method of contradiction.	
	Prove $\sqrt{2}$ is irrational by method of contradiction.	
	$\therefore \sqrt{2} + \sqrt{3}$ is irrational.	
	∴sum of two irrational, is irrational.	
Ans18	HCF of 726, 275	3
	By EDL	
	726 = 275  x  2 + 176	
	275 and 176	
	By ED L	
	275 = 176  x  1 + 99	
	176 and 99	
	∴ by EDL	
	$176 = 99x \ 1 + 77$	
	$99 = 77 \times 1 + 22$	
	And so on	
	At last	
	HCF = 11	
Ans19	Same as answer 18	3
Ans20	Boys $= 20$	3
	Girls = 15	
	No of graph $=$ n	
	HCF of boys and girls $= 5$	
	No of graphs of boys $=\frac{20}{5}=4=x$	
	No of groups of girls $=\frac{15}{5}=3=y$	
	No. of groups $= 4 + 3 = 7 = n$	

## Test Paper Session 2017-18

## CLASS 10 SUBJECT Mathematics CHAPTER- 2 Polynomials

Ans1	$Deg p (x) < \{ deg g(x) \}$	1
Ans2	S = -3+4 = 1, $P = -3x4 = -12$	1
	$\therefore$ Required polynomial = $x^2 - x - 12$	
Ans3	S = -(-5) = 5	1
	A + B = 5	
	B = 5 - 6 = -1	
Ans4	let $f(x) = x^2 - 5x + 4$	1
	f(3) = 32 - 5 x 3 + 4 = -2	
	for $f(b) = 0$ , 2 must be added to $f(x)$	
Ans5	Let one root be x then other root will be $-x$	2
	$\therefore \mathbf{S} = \mathbf{x} + (-\mathbf{x}) = 0$	
	$\frac{-b}{a} = \frac{8k}{4} = 0$	
	$\mathbf{K} = \mathbf{O}$	
Ans6	$(K-1) (-3)^2 + K (-3) + 1 = 0$	2
	Solving we will get $K = \frac{4}{2}$	
Ans7	A+B=5 and $AB=6$	2
7 (157	$\therefore A+B - 3AB = 5 - 3x6 = 5 - 18 = -13$	2
Ans8	$4x^2 - 12x + 9 = (2x-3)^2 = 0$	2
	$x = \frac{3}{2}, \frac{3}{2}$	
Anco	$\frac{A-2}{2}$	2
Ans9	A +B = -1, AB = -1, so $\frac{1}{A} + \frac{1}{B} = \frac{A+B}{AB} = \frac{-1}{-1} = 1$	Z
Ans10	$a(1)^2 - 3(a-1)(1) - 1 = 0$	2
	a - 3a + 3 - 1 = 0	
Ans11	$\alpha + \beta = -1/4 \alpha \beta = 1/4$	2
A 10010	$\therefore \text{ Req. Polynomial } \frac{1}{4} (4x2 + x + 1)$	2
Ans12	$\alpha + \beta = \sqrt{2}  \alpha \beta = 1/3$	2
	$\therefore \text{ Req. polynomial } 3x2 - 3\sqrt{2} x + 1$	
Ans13	On solving $6x^2 - 3-7x$ we get factors $(2x-3)(3x+1)$	3
A 10 o 1 4	Thus $\alpha = 3/2 \ \beta = -1/3$	2
Ans14	On dividing $3x^4 + 5x^3 - 7x^2 + 2x+2$ by $x^2 + 3x + 1$ we get, $3x^2 - 4x + 2$ as quotient and 0 as remainder. So, $x^2 + 3x + 1$ is a factor of the given polynomial	3
Ans15	From $2x^2 - 5x + 7$ , $\alpha + \beta = 5/2$ and $\alpha\beta = 7/2$	3
AIISTO	From $2x = 5x + 7$ , $\alpha + \beta = -5/2$ and $\alpha \beta = 7/2$ For required polynomial :	3
	S = $(2 \alpha + 3\beta) + 3\alpha + 2\beta$ = 5 $\alpha + 5\beta$ = 5 $(\alpha + \beta)$ = 5x 5/2 = 25/2	
	$P = (2\alpha + 3\beta) (3\alpha + 2\beta) = 6\alpha 2 + 6\beta 2 + 13\alpha\beta$	
	$= 6 \alpha^{2} + 6\beta^{2} + 12 \alpha \beta + \alpha \beta$	
	$= 6(\alpha^2 + \alpha\beta^2 + 2 \alpha \beta) + \alpha \beta$	
	$= 6 (\alpha + \beta)^2 + \alpha \beta$	
	$= 6 (5/2)^2 + 7/2 = 41$	
	$\therefore$ Required polynomial = K (x <sup>2</sup> –S x + P)	
	$= K (x^2 - \frac{25x}{2} + 41)$ where k is any non zero real number.	
Ans16	On dividing $8x^4 + 14x^3 - 2x^2 + 7x - 8$ by $4x^2 + 3x - 2$ we get $2x^2 + 2x - 1$ as quotient and $14x - 10 - y$ as	3
2	remainder.	Ĭ
	$\therefore$ Remainder should be 0.	
	$\therefore 14x - 10 - y = 0$	
	y = 14x - 10 should be subtracted from given polynomial/	
Ans17	$f(x) = \sqrt{3} x^2 - 8x + 4\sqrt{3} = 0$	3
	$(x - 2\sqrt{3})(\sqrt{3}x - 2) = 0$	1

		r –
	$X = 2\sqrt{3} \text{ or } x = \frac{2}{\sqrt{3}}$	
	$S = 2\sqrt{3} + \frac{2}{\sqrt{3}} = \frac{\frac{\sqrt{3}}{8}}{\sqrt{3}} = \frac{-coeff.of x}{coeff of x^2}$	
	$5 - 2\sqrt{3} + \sqrt{3} - \sqrt{3}$ coeff of $x^2$	
	$P = 2\sqrt{3} x \frac{2}{\sqrt{3}} = \frac{4\sqrt{3}}{\sqrt{3}} = \frac{-constant \ terms}{coeff \ of \ x^2}$	
	Hence verified	
Ans18		3
AIISTO	$r_{1} = r_{1} = r_{2} = r_{3} = r_{2} = r_{3} = r_{3$	5
	$S = \frac{7}{6} P = \frac{1}{3}$ $\frac{1}{\alpha} + \frac{1}{\beta} = \frac{\beta + \alpha}{\alpha \beta} = \frac{7/6}{1/3} = \frac{7}{2}$	
	$\frac{1}{\pi} + \frac{1}{\theta} = \frac{\beta + \alpha}{\pi \theta} = \frac{7/6}{1/2} = \frac{7}{2}$	
	$\alpha \beta \alpha \beta 1/3 2$ 1 1 7 2	
	$\frac{1}{\alpha} \times \frac{1}{\beta} = \frac{7}{1/3} = 3$	
	$\begin{array}{ll} x & y^{2} & 1/3 \\ \hline \text{Required polymonail} & = y^{2} & -7/2 & y + 3 = \frac{1}{2} & (2y^{2} - 7y + 6) \\ \hline \text{B} = 7\alpha & \text{than, } S = 8 & \alpha \end{array}$	
Ans19		3
	$-\left(\frac{-8}{3}\right) = 8 \alpha = \alpha = \frac{1}{3}$	
	$P = 7 \alpha^2 = \frac{2K+1}{2K+1}$	
	$7(1/3)^2 = \frac{2K+1}{3} = K = 2/3$	
	3	
Ans20	Let $f(x) = x^4 + 2x^3 + 8x^2 + 12x + 18$ and $g(x) = x^2 + 5$	3
	In dividing $f(x)$ by $g(x)$ we get $q(x) = x^2 + 2x + 3$ and $r(x) = 2x+3$ on comparing the remainder with	-
	px+q,	
	Px + q = 2x + 3 $P = 2 q = 3$	
Ans21	By division algorithm, we have $f(x) = g(x) x q(x) + r(x)$	4
	f(x) - r(x) = g(x) x q(x)	
	$f(x) + \{-r(x)\} = g(x) x q(x)$	
	on dividing $f(x)$ by $g(x)$ we get	
	$q(x) = 4x^2 - 6x + 22$ and $r(x) = -61x + 65$	
	: We should add $-r(x) = 61x - 65$ to $f(x)$ so that the resulting polynomial is divisible by $g(x)$ .	
Ans22	Let $p(x) = 2x^2 + 3x + \lambda$	4
	$P(1/2) = 2 (1/2)^2 + 3x1/2 + \lambda = 0$	
	$\lambda = -2$	
	$\alpha + \frac{1}{2} = \frac{-3}{2} \alpha = -2$	
Ans23	Let $\alpha$ and $\frac{1}{\alpha}$ be the zeroes	4
1	Let $\alpha$ and $\frac{-}{\alpha}$ be the zeroes	
	$P = \alpha \ge 1/\alpha = 1 = \frac{6a}{a^2 + 9} = a = 3$	
Ans24		4
	$\therefore \sqrt{\frac{5}{3}}$ and $\sqrt{\frac{-5}{3}}$ are zeroes so, $\left(x - \sqrt{\frac{5}{3}}\right) \left(x - \sqrt{\frac{5}{3}}\right) = x^2 - \frac{5}{3}$ is factor of the given polynomial on dividing	
	the given polynomial by $x^2 - \frac{5}{3}$ we get	
	$3x^2 + 6x + 3$ as $q(x)$ and remainder 0	
	3(x+1)(x+1)	
A 0 E	Other zeros are $-1, -1$	
Ans25	From polynomial, $6x^2 + x - 1$	4
	$\alpha + \beta = -\frac{1}{6}$	
	$\begin{array}{l} \alpha \ \beta = -1/6 \\ \alpha^3 \beta + \alpha \beta^3 \end{array}$	
	$\begin{array}{c} \alpha \ \beta + \alpha \beta \\ \alpha \beta \ (\alpha^2 + \beta^2) \end{array}$	
	$\frac{\alpha \beta (\alpha + \beta)}{\alpha \beta [(\alpha + \beta)^2 - 2 \alpha \beta]}$	
	$ \begin{array}{c} \mu \mu$	
	$-\frac{1}{6}[(-1/6)^2 - 2(-1/6)]$	
	$-\frac{1}{6}[1/36 + 1/3]$	
	$-\frac{1}{6} \times \left(\frac{1+12}{36}\right) \\ -\frac{13}{216}$	
	-13	
Ans26	If $\sqrt{3}$ is a zero of given polymonial then x - $\sqrt{3}$ must be its factor : on dividing x3+x2- 3x-3by x- $\sqrt{3}$ we get	4
	$x^{2} + (\sqrt{3} + 1)x + \sqrt{3}$ as quotient and zero as reminder.	
	$X \to (Y \circ + Y) X + Y \circ u \circ quotiont und zoro us reminder.$	
L		I

	$x^{2} + (\sqrt{3} + 1) x + \sqrt{3}$	
	$x^2 + \sqrt{3} x + x + \sqrt{3}$	
	$x(X+\sqrt{3}x+1)(X+\sqrt{3}x$	
	$(x + \sqrt{3})$ $(x - 1)$	
	$\therefore$ other zero are - $\sqrt{3}$ , -1.	
Ans27	$(x - 2 + \sqrt{3})$ (x - 2 - $\sqrt{3}$ ) as factor	4
	on dividing given polynomial by it we get $x^2 - 2x - 35$	
	$\therefore$ other zeros are -5 and 7	
Ans28	On dividing $ax3 + bx - c$ by $x^2 + bx + c$ we get $ax - ab$ as quotient and $-acx + bx + ab^2x + abc - c$ as	4
	reminder.	
	$-acx + bx + ab^2x + abc - c$	
	$x (ab^2 - ac + b) + c(ab-1) = 0$	
	= 0	
	= ab $=$ 1	
	To make the remainder zero, $ab = 1$	

## Test Paper Session 2017-18

CLASS 10	SUBJECT	Mathematics
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CHAPTER- 3 Pair of Linear Equations in two variables

Ans1 $\frac{b}{2} = \frac{2k}{5} \neq -\frac{2}{1}$ for parallel lines K = 15/4Ans2Intersecting point will be $(0,y)$ x y = 8 0-y = 8 Y = -8 to equired pt is $(0,-8)$ Ans3On dividing $x^2 - 5x$ -6 by x-6 we get x + 1 as quotient and zero as remainder $\cdot$ other zero is -1Ans4 $\frac{4}{12} = \frac{3}{9} \neq \frac{6}{15} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} \neq \frac{c1}{c2}$ $\cdot$ equations do not represent a pair of coincident lines.Ans5Yes, $\frac{a1}{a2} = \frac{2a}{4a} = \frac{1}{2}, \frac{b1}{b2} = \frac{b}{c1} = \frac{1}{c2} = -\frac{a}{-2a} = \frac{1}{2}$ $\cdot$ equations are consistentAns6 $\frac{a1}{a2} = \frac{1}{c} \frac{b1}{b2} = -\frac{1}{a2} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2}$ so it has a unique solution and is consistent.Ans7 $\frac{a1}{a2} = \frac{5}{b1} = \frac{1}{2} = \frac{c1}{a2} = \frac{a1}{b2} \Rightarrow \frac{b1}{b2}$ so it has a unique solution and is consistent.Ans8 $\frac{a1}{a2} = \frac{2}{c1} = \frac{1}{b2} = \frac{2}{c1} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = coincident lines.Ans8\frac{a1}{a2} = \frac{3}{c1} = \frac{1}{2} \Rightarrow \frac{a1}{a2} = \frac{b1}{c2} = \frac{c1}{c2} = coincident lines.Ans10\frac{a1}{a2} = \frac{3b}{b1} = 3 = \frac{1}{c2} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2}\frac{c1}{c2} = \frac{c1}{c2} = \frac{c1}{c2} = \frac{c1}{c2} = \frac{c1}{c2}\frac{c1}{c2} = \frac{c1}{c2} = \frac{c1}{c2} = \frac{c1}{c2}\frac{c1}{c2} = \frac{c1}{c2} = \frac{c1}{c2} = \frac{c1}{c2}\frac{c1}{c2} = \frac{c1}{c2} $	1 1 1 1 2 2 2 2 2 2
K = 15/4Ans2Intersecting point will be (0,y) x · y = 8 0-y = 8 Y = -8 condividing x² - 5x - 6 by x-6 we get x + 1 as quotient and zero as remainder .other zero is -1Ans3On dividing x² - 5x - 6 by x-6 we get x + 1 as quotient and zero as remainder .other zero is -1Ans4 $\frac{4}{12} = \frac{3}{9} \neq \frac{6}{15} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} \neq \frac{c1}{c2}$ . equations do not represent a pair of coincident lines.Ans5Yes, $\frac{a1}{a2} = \frac{2a}{4a} = \frac{1}{2}, \frac{b1}{b2} = \frac{b}{2b} = \frac{1}{2}, \frac{c1}{c2} = \frac{-a}{-aa} = \frac{1}{2}$ . equations are consistentAns6 $\frac{a1}{a2} = \frac{1}{b}, \frac{b1}{b2} = \frac{b}{a2} + \frac{b1}{b2}$ so it has a unique solution and is consistent.Ans7 $\frac{a1}{a2} = \frac{5}{b1}, \frac{b1}{c2} = \frac{2}{a3} = \frac{a1}{b2}$ so it has a unique solution and is consistent.Ans8 $\frac{a1}{a2} = \frac{3}{b1}, \frac{b1}{b2} = \frac{1}{c2}, \frac{c1}{c2} = \frac{c1}{c2} = cincident lines.Ans9\frac{a1}{a2} = \frac{1}{a1}, \frac{b1}{b2} = \frac{1}{a1}, \frac{c1}{c2} = \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = cincident lines.Ans10\frac{a1}{a2} = \frac{b1}{a1} = \frac{1}{a2}, \frac{c1}{a2} = \frac{a1}{a2} = \frac{b1}{a2} = \frac{c1}{c2}cincident lines.Ans11For coincident lines \frac{a1}{a2} = \frac{b1}{a2} = \frac{c1}{c2} = \frac{c1}{c2}k = 14Ans12For no solution : \frac{a1}{a2} = \frac{b1}{b2} \neq \frac{c1}{c2}k = 14Ans13x = 1, y = -1Ans14x = 2, y = 1$	1 1 2 2 2 2 2 2
$\begin{array}{l} x \cdot y = 8\\ 0 \cdot y = 8\\ Y = -8\\ \therefore \text{ Required pt is } (0,-8)\\ \hline \text{Ans3}  \text{On dividing } x^2 - 5x \cdot 6 \text{ by } x - 6 \text{ we get } x + 1 \text{ as quotient and zero as remainder}\\ \therefore \text{ other zero is } -1\\ \hline \text{Ans4}  \frac{4}{12} = \frac{3}{9} + \frac{6}{15} \Rightarrow \frac{a1}{a2} = \frac{b1}{2} \neq \frac{c1}{c2}\\ \therefore \text{ equations do not represent a pair of coincident lines.}\\ \hline \text{Ans5}  \text{Yes, } \frac{a1}{a2} = \frac{2a}{4a} = \frac{1}{2}, \frac{b1}{b2} = \frac{b}{2b} = \frac{1}{2}, \frac{c1}{c2} = \frac{-a}{-2a} = \frac{1}{2}\\ \therefore \text{ equations are consistent}\\ \hline \text{Ans6}  \frac{a1}{a2} = \frac{1}{6}, \frac{b1}{b2} = -\frac{1}{a} \Rightarrow \frac{a1}{a2} \neq \frac{b1}{b2} \text{ so it has a unique solution and is consistent.}\\ \hline \text{Ans8}  \frac{a1}{a2} = \frac{2}{5}, \frac{b1}{b2} = -\frac{2}{3} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = -\text{cincident lines.}\\ \hline \text{Ans8}  \frac{a1}{a2} = \frac{9}{2} = \frac{1}{2}, \frac{b1}{b2} = \frac{1}{c1}, \frac{c1}{c2} = \frac{1}{a2} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \text{coincident lines.}\\ \hline \text{Ans9}  \frac{a1}{a2} = \frac{9}{b1} = \frac{1}{2}, \frac{c1}{c2} = \frac{1}{2} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \text{coincident lines.}\\ \hline \text{Ans9}  \frac{a1}{a2} = \frac{3}{b2} = \frac{1}{b2}, \frac{c1}{c2} = \frac{1}{2} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \text{coincident lines.}\\ \hline \text{Ans10}  \frac{a1}{a2} = \frac{3b1}{b2} = \frac{c1}{c2} = \frac{a}{a2} = \frac{b1}{b2} = \frac{c1}{c2} $	1 1 2 2 2 2 2 2
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	2 2 2 2 2 2
Y = -8 	2 2 2 2 2 2
$\begin{array}{ c c c c c } \hline \therefore \text{ Required pt is } (0,-8) \\ \hline \text{Ans3} & \text{On dividing } x^2 - 5x - 6 \text{ by } x - 6 \text{ we get } x + 1 \text{ as quotient and zero as remainder} \\ \hline \therefore \text{ other zero is } -1 \\ \hline \text{Ans4} & \frac{4}{12} = \frac{3}{9} + \frac{6}{15} \Rightarrow \frac{a1}{a2} - \frac{b1}{b2} \neq \frac{c1}{c2} \\ \hline \therefore \text{ equations do not represent a pair of coincident lines.} \\ \hline \text{Ans5} & \text{Yes, } \frac{a1}{a2} = \frac{2a}{aa} = \frac{1}{2}, \frac{b1}{b2} = \frac{b}{b} = \frac{1}{2}, \frac{c1}{c2} = -\frac{a}{2a} = \frac{1}{2} \\ \hline \therefore \text{ equations are consistent} \\ \hline \text{Ans6} & \frac{a1}{a2} = -\frac{1}{6}, \frac{b1}{b2} = -\frac{1}{a} \Rightarrow \frac{a1}{a2} \neq \frac{b1}{b2} \text{ so it has a unique solution and is consistent.} \\ \hline \text{Ans7} & \frac{a1}{a2} = -\frac{5}{6}, \frac{b1}{b2} = -\frac{2}{3} \Rightarrow \frac{a1}{a2} \neq \frac{b1}{b2} \text{ so it has a unique solution and is consistent.} \\ \hline \text{Ans8} & \frac{a1}{a2} = -\frac{3}{6}, \frac{b1}{b2} = -\frac{2}{a} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \text{coincident lines.} \\ \hline \text{Ans9} & \frac{a1}{a2} = -\frac{1}{2}, \frac{b1}{b2} = -\frac{1}{2}, \frac{c1}{c2} = \frac{2}{a} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \text{coincident lines.} \\ \hline \text{Ans9} & \frac{a1}{a2} = -\frac{3}{b1} = -\frac{1}{2}, \frac{c1}{c2} = \frac{1}{a} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \text{coincident lines.} \\ \hline \text{Ans10} & \frac{a1}{a2} = -\frac{3}{b1} = -\frac{3}{c2}, \frac{c1}{c2} = \frac{1}{a} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \text{coincident lines.} \\ \hline \text{Ans11} & \text{For coincident lines} = \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \frac{b1}{c2} = \frac{c1}{c2} \\ \hline \text{K} = \frac{a}{a} = \frac{a}{b1} = \frac{b1}{a2} = \frac{b1}{c2} = \frac{b1}{a2} = \frac{b1}{c2} = \frac{b1}{c2} = \frac{c1}{c2} \\ \hline \text{K} = \frac{a}{a} = -\frac{a}{b} = \frac{b}{b2} = \frac{c1}{c2} = \frac{b1}{c2} = \frac{c1}{c2} \\ \hline \text{K} = 6 \\ \hline \text{K} = 6 \\ \hline \text{Ans13} & \text{x} = 1, \text{y} = -1 \\ \hline \text{Ans14} & \text{x} = 2, \text{y} = 1 \end{array}$	2 2 2 2 2 2
Ans3On dividing $x^2 - 5x - 6$ by x-6 we get x + 1 as quotient and zero as remainder .:other zero is -1Ans4 $\frac{4}{12} = \frac{3}{9} \neq \frac{1}{6} = \frac{b1}{a2} = \frac{d1}{b2} = \frac{b1}{c2} \neq \frac{c1}{c2}$ .: equations do not represent a pair of coincident lines.Ans5Yes, $\frac{a1}{a2} = \frac{2a}{a} = \frac{1}{2}; \frac{b1}{b2} = \frac{1}{b}; \frac{b1}{b2} = \frac{1}{b}; \frac{b1}{b2} = \frac{1}{c2} = \frac{-a}{-2a} = \frac{1}{2}$ .: equations are consistentAns6 $\frac{a1}{a2} = \frac{1}{6}; \frac{b1}{b2} = -\frac{1}{6} \Rightarrow \frac{a1}{a2} \neq \frac{b1}{b2}$ so it has a unique solution and is consistent.Ans7 $\frac{a1}{a2} = \frac{1}{5}; \frac{b1}{b2} = -\frac{1}{2} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2}$ so it has a unique solution and is consistent.Ans8 $\frac{a1}{a2} = \frac{1}{5}; \frac{b1}{b2} = -\frac{2}{3} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2}$ so it has a unique solution and is consistent.Ans9 $\frac{a1}{a2} = \frac{3}{5}; \frac{b1}{b2} = -\frac{2}{c2} = \frac{2}{3} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \text{coincident lines.}$ Ans10 $\frac{a1}{a2} = \frac{1}{3}; \frac{b1}{b2} = \frac{1}{c2}; \frac{a1}{c2} = \frac{1}{a2} = \frac{a1}{b1} = \frac{c1}{c2} = \text{coincident lines.}$ Ans11For coincident lines $\frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \frac{c1}{c2}$ K = 14Hans12For no solution: $\frac{a1}{a2} = \frac{b1}{b2} \neq \frac{c1}{c2}$ K = 6K = 6Ans13x = 1, y = -1Ans14x = 2, y = 1	2 2 2 2 2 2
$\begin{array}{l} \begin{array}{l} \text{Ans4} & \frac{1}{42} = \frac{3}{9} \neq \frac{1}{615} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} \neq \frac{c1}{c2} \\ \text{$\therefore$ equations do not represent a pair of coincident lines.} \end{array}$ $\begin{array}{l} \text{Ans5} & \text{Yes, } \frac{a1}{a2} = \frac{2a}{4a} = \frac{1}{2}, \frac{b1}{b2} = \frac{b}{2b} = \frac{1}{2}, \frac{c1}{c2} = -\frac{a}{-2a} = \frac{1}{2} \\ \text{$\therefore$ equations are consistent} \end{array}$ $\begin{array}{l} \text{Ans6} & \frac{a1}{a2} = \frac{1}{6}, \frac{b1}{b2} = -\frac{1}{a} \Rightarrow \frac{a1}{a2} \neq \frac{b1}{b2} \text{ so it has a unique solution and is consistent.} \end{array}$ $\begin{array}{l} \text{Ans7} & \frac{a1}{a2} = \frac{5}{7}, \frac{b1}{b2} = -\frac{2}{a} \Rightarrow \frac{a1}{a2} \neq \frac{b1}{b2} \text{ so it has a unique solution and is consistent.} \end{array}$ $\begin{array}{l} \text{Ans8} & \frac{a1}{a2} = \frac{2}{7}, \frac{b1}{b2} = -\frac{2}{a}, \frac{a1}{a2} \neq \frac{b1}{b2} \text{ so it has a unique solution and is consistent.} \end{array}$ $\begin{array}{l} \text{Ans8} & \frac{a1}{a2} = \frac{2}{3}, \frac{b1}{b2} = -\frac{2}{a}, \frac{a1}{a2} = \frac{b1}{b2} = -\frac{c1}{c2} = \text{coincident lines.} \end{array}$ $\begin{array}{l} \text{Ans8} & \frac{a1}{a2} = -\frac{2}{a}, \frac{b1}{b2} = -\frac{1}{a}, \frac{a1}{a2} = -\frac{b1}{b2} = -\frac{c1}{c2} = -\frac{c1}{c2} = \text{coincident lines.} \end{array}$ $\begin{array}{l} \text{Ans9} & \frac{a1}{a2} = -\frac{2}{b1}, \frac{b1}{a2} = -\frac{c1}{a2} = -\frac{2}{a}, \frac{b1}{a2} = -\frac{c1}{a2} = -\frac{c1}{c2} = -\frac{c1}{c2} = \text{coincident lines.} \end{array}$ $\begin{array}{l} \text{Ans9} & \frac{a1}{a2} = -\frac{a}{b2} = -\frac{1}{a}, \frac{b1}{a2} = -\frac{a}{a2} = -\frac{b1}{a2} = -\frac{c1}{c2} = $	2 2 2 2 2 2
Ans4 $\frac{4}{12} = \frac{3}{9} \neq \frac{6}{15} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} \neq \frac{c1}{c2}$ $\therefore$ equations do not represent a pair of coincident lines.Ans5Yes, $\frac{a1}{a2} = \frac{2a}{a} = \frac{1}{2}, \frac{b1}{b2} = \frac{b}{b} = \frac{1}{2}, \frac{c1}{c2} = \frac{-a}{-2a} = \frac{1}{2}$ $\therefore$ equations are consistentAns6 $\frac{a1}{a2} = \frac{1}{b}, \frac{b1}{b2} = \frac{-1}{a} \Rightarrow \frac{a1}{a2} \neq \frac{b1}{b2}$ so it has a unique solution and is consistent.Ans7 $\frac{a1}{a2} = \frac{1}{b}, \frac{b1}{b2} = \frac{-2}{3} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2}$ so it has a unique solution and is consistent.Ans8 $\frac{a1}{a2} = \frac{2}{5}, \frac{b1}{b2} = \frac{2}{3} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2}$ so it has a unique solution and is consistent.Ans8 $\frac{a1}{a2} = \frac{2}{3}, \frac{b1}{b2} = \frac{2}{3} = \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \text{coincident lines.}$ Ans9 $\frac{a1}{a2} = \frac{3}{a1}, \frac{b1}{a2} = \frac{1}{a2}, \frac{c1}{a2} = \frac{1}{a2} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \text{coincident lines.}$ Ans10 $\frac{a1}{a2} = \frac{3}{a1}, \frac{b1}{a2} = \frac{2}{a1}, \frac{c1}{a2} = \frac{b1}{a2} = \frac{c1}{a2} = \frac{c1}{a2} = \text{coincident lines.}$ Ans11For coincident lines $\frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \frac{c1}{c2}$ $\frac{k+1}{5} = 3$ $k = 14$ $k = 14$ Ans12For no solution: $\frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2}$ $\frac{k}{2} = \frac{3}{a6} = \frac{-(k-3)}{-k}$ $\frac{k}{b2} = \frac{b1}{b2} \neq \frac{c1}{c2}$ $\frac{k}{5} = 36$ $\frac{k}{5} = 6$ Ans13 $x = 1, y = -1$ Ans14 $x = 2, y = 1$	2 2 2 2 2 2
$\begin{array}{r llllllllllllllllllllllllllllllllllll$	2 2 2 2 2 2
$\begin{array}{r llllllllllllllllllllllllllllllllllll$	2 2 2 2
Ans5Yes, $\frac{a1}{a2} = \frac{2a}{4a} = \frac{1}{2}, \frac{b1}{b2} = \frac{b}{2b} = \frac{1}{2}, \frac{c1}{c2} = \frac{-a}{-2a} = \frac{1}{2}$ Ans6 $\frac{a1}{a2} = \frac{1}{6}, \frac{b1}{b2} = \frac{-1}{-3} \Rightarrow \frac{a1}{a2} \neq \frac{b1}{b2}$ so it has a unique solution and is consistent.Ans7 $\frac{a1}{a2} = \frac{5}{6}, \frac{b1}{b2} = \frac{-1}{-3} \Rightarrow \frac{a1}{a2} \neq \frac{b1}{b2}$ so it has a unique solution and is consistent.Ans8 $\frac{a1}{a2} = \frac{2}{7}, \frac{b1}{b2} = \frac{2}{-3} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \text{coincident lines.}$ Ans8 $\frac{a1}{a2} = \frac{2}{7}, \frac{b1}{b2} = \frac{2}{3}, \frac{c1}{c2} = \frac{1}{2} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \text{coincident lines.}$ Ans9 $\frac{a1}{a2} = \frac{3}{16}, \frac{b1}{22} = \frac{1}{2}, \frac{c1}{c2} = \frac{1}{2} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \text{coincident lines.}$ Ans10 $\frac{a1}{a1} = \frac{3}{b1} = 3, \frac{c1}{c2} = \frac{1}{2} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2}$ Ans11For coincident lines $\frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2}$ $\frac{k+1}{5} = 3$ $\frac{a}{k} = \frac{15}{5}$ $k = 14$ Ans12For no solution : $\frac{a1}{a2} = \frac{b1}{b2} \neq \frac{c1}{c2}$ $\frac{k}{12} = \frac{a}{3} = \frac{-(k-3)}{k}$ $\frac{k}{2} = 36$ $K = 6$ $K = 6$ Ans13 $x = 1, y = -1$	2 2 2 2
Find Tes, $\frac{1}{a2} = \frac{1}{a4} = \frac{1}{2}, \frac{1}{b2} = \frac{1}{2}, \frac{1}{c2} = \frac{1}{-2a} = \frac{1}{2}$ Anso $\frac{a1}{a2} = \frac{1}{b}, \frac{b1}{b2} = \frac{-1}{a} \Rightarrow \frac{a1}{a2} \neq \frac{b1}{b2}$ so it has a unique solution and is consistent. Anso $\frac{a1}{a2} = \frac{1}{5}, \frac{b1}{b2} = \frac{-1}{2} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2}$ so it has a unique solution and is consistent. Anso $\frac{a1}{a2} = \frac{2}{5}, \frac{b1}{b2} = \frac{-2}{3} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2}$ so it has a unique solution and is consistent. Anso $\frac{a1}{a2} = \frac{2}{3}, \frac{b1}{b2} = \frac{-2}{3} = \frac{a1}{c2} = \frac{b1}{b2} = \frac{c1}{c2} = \text{coincident lines.}$ Anso $\frac{a1}{a2} = \frac{3}{3}, \frac{b1}{2} = \frac{2}{3}, \frac{c1}{c2} = \frac{1}{2} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \text{coincident lines.}$ Anso $\frac{a1}{a2} = \frac{3b}{b2} = \frac{1}{3}, \frac{c1}{c2} = \frac{1}{2} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \text{coincident lines.}$ Anso $\frac{a1}{a2} = \frac{3b}{b2} = 3, \frac{c1}{c2} = \frac{10}{9}$ $\frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \frac{c1}{c2} = \text{coincident lines.}$ Anso $\frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \frac{c1}{c2} = \text{coincident lines.}$ Anso $\frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \frac{c1}{c2} = \text{coincident lines.}$ Anso $\frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \frac{c1}{c2} = \text{coincident lines.}$ Anso $\frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \frac{c1}{c2} = \text{coincident lines.}$ Anso $\frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} =$	2 2 2 2
∴ equations are consistentAns6 $\frac{a1}{a2} = \frac{1}{b} \frac{b1}{b2} = \frac{-1}{a} \Rightarrow \frac{a1}{a2} \neq \frac{b1}{b2}$ so it has a unique solution and is consistent.Ans7 $\frac{a1}{a2} = \frac{5}{7} \frac{b1}{b2} = \frac{-1}{2} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2}$ so it has a unique solution and is consistent.Ans8 $\frac{a1}{a2} = \frac{2}{3} \frac{b1}{b2} = \frac{2}{3} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = coincident lines.Ans9\frac{a1}{a2} = \frac{1}{2} \frac{b1}{b2} = \frac{1}{2} \cdot \frac{c1}{c2} = \frac{1}{2} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = coincident lines.Ans10\frac{a1}{a2} = \frac{b1}{b2} = \frac{1}{2} \cdot \frac{c1}{c2} = \frac{1}{2} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = coincident lines.Ans10\frac{a1}{a2} = \frac{b1}{b2} = \frac{1}{c2} \cdot \frac{c1}{a2} = \frac{b1}{a2} = \frac{c1}{c2}Ans11For coincident lines \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2}\frac{k+1}{5} = 3\frac{a1}{k} = \frac{15}{5}\frac{k+1}{5} = 3\frac{a1}{a2} = \frac{b1}{b2} \neq \frac{c1}{c2}\frac{k}{12} = \frac{3}{k} = \frac{-(k-3)}{-k}\frac{k}{k} = 14Ans12For no solution : \frac{a1}{a2} = \frac{b1}{b2} \neq \frac{c1}{c2}\frac{k}{k} = 6\frac{a}{k} = 1, y = -1Ans13x = 1, y = -1$	2
Ans6 $\frac{a1}{a2} = \frac{1}{6}, \frac{b1}{b2} = \frac{-1}{6} \Rightarrow \frac{a1}{a2} \neq \frac{b1}{b2}$ so it has a unique solution and is consistent.Ans7 $\frac{a1}{a2} = \frac{5}{7}, \frac{b1}{b2} = \frac{-2}{3} \Rightarrow \frac{a1}{a2} = \frac{b1}{b3}$ so it has a unique solution and is consistent .Ans8 $\frac{a1}{a2} = \frac{2}{3}, \frac{b1}{b2} = \frac{2}{3} = \frac{c1}{c2} = \frac{2}{3} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \text{coincident lines.}$ Ans9 $\frac{a1}{a2} = \frac{9}{18} = \frac{1}{2}, \frac{b1}{b2} = \frac{1}{2}, \frac{c1}{c2} = \frac{1}{2} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \text{coincident lines.}$ Ans10 $\frac{a1}{a2} = \frac{3}{b1} = 3, \frac{c1}{c2} = \frac{1}{2} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2}$ Ans11For coincident lines $\frac{k+1}{5} = \frac{3k}{k} = \frac{15}{5}$ $\frac{k+1}{5} = 3$ $k = 14$ Ans12Ans13For no solution: $\frac{a1}{a2} = \frac{b1}{b2} \neq \frac{c1}{c2}$ $\frac{k}{2} = 36$ $\frac{k}{2} = 3, \frac{1}{2} = 1$	2
Ans7 $\frac{d1}{d2} = \frac{3}{7}, \frac{b1}{b2} = \frac{-2}{3} \Rightarrow \frac{d1}{d2} = \frac{b1}{2}$ so it has a unique solution and is consistent .Ans8 $\frac{d1}{d2} = \frac{2}{3}, \frac{b1}{b2} = \frac{2}{3} = \frac{c1}{c2} = \frac{2}{3} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \text{coincident lines.}$ Ans9 $\frac{d1}{a2} = \frac{3}{18} = \frac{1}{2}, \frac{b1}{b2} = \frac{2}{2}, \frac{c1}{c2} = \frac{1}{2} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \text{coincident lines.}$ Ans10 $\frac{a1}{a2} = \frac{3}{18} = \frac{1}{2}, \frac{b1}{22} = \frac{2}{c1} = \frac{1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \text{coincident lines.}$ Ans10 $\frac{a1}{a2} = \frac{3}{b1} = \frac{1}{2}, \frac{c1}{c2} = \frac{1}{2} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \text{coincident lines.}$ Ans11For coincident lines $\frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2}$ $\frac{k+1}{5} = \frac{3k}{k} = \frac{15}{5}$ $\frac{k+1}{b2} = \frac{3k}{c2} = \frac{1}{b2}$ $\frac{k+1}{5} = 3$ $k = 14$ Ans12For no solution: $\frac{a1}{a2} = \frac{b1}{b2} \neq \frac{c1}{c2}$ $\frac{k}{12} = \frac{3}{k} = \frac{-(k-3)}{-k}$ $\frac{k}{k} = \frac{4}{k}$ $K = 6$ K = 6Ans13 $x = 1, y = -1$	2
Ans7 $\frac{d1}{d2} = \frac{3}{7}, \frac{b1}{b2} = \frac{-2}{3} \Rightarrow \frac{d1}{d2} = \frac{b1}{2}$ so it has a unique solution and is consistent .Ans8 $\frac{d1}{d2} = \frac{2}{3}, \frac{b1}{b2} = \frac{2}{3} = \frac{c1}{c2} = \frac{2}{3} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \text{coincident lines.}$ Ans9 $\frac{d1}{a2} = \frac{3}{18} = \frac{1}{2}, \frac{b1}{b2} = \frac{2}{2}, \frac{c1}{c2} = \frac{1}{2} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \text{coincident lines.}$ Ans10 $\frac{a1}{a2} = \frac{3}{18} = \frac{1}{2}, \frac{b1}{22} = \frac{2}{c1} = \frac{1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \text{coincident lines.}$ Ans10 $\frac{a1}{a2} = \frac{3}{b1} = \frac{1}{2}, \frac{c1}{c2} = \frac{1}{2} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \text{coincident lines.}$ Ans11For coincident lines $\frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2}$ $\frac{k+1}{5} = \frac{3k}{k} = \frac{15}{5}$ $\frac{k+1}{b2} = \frac{3k}{c2} = \frac{1}{b2}$ $\frac{k+1}{5} = 3$ $k = 14$ Ans12For no solution: $\frac{a1}{a2} = \frac{b1}{b2} \neq \frac{c1}{c2}$ $\frac{k}{12} = \frac{3}{k} = \frac{-(k-3)}{-k}$ $\frac{k}{k} = \frac{4}{k}$ $K = 6$ K = 6Ans13 $x = 1, y = -1$	2
Ans8 $\frac{a1}{a2} = \frac{2}{3}, \frac{b1}{b2} = \frac{3}{3} = \frac{c1}{c2} = \frac{2}{3} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \text{ coincident lines.}$ Ans9 $\frac{a1}{a2} = \frac{3}{18} = \frac{1}{2}, \frac{b1}{b2} = \frac{1}{2}, \frac{c1}{c2} = \frac{1}{2} \Rightarrow \frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2} = \text{ coincident lines.}$ Ans10 $\frac{a1}{a2} = 3, \frac{b1}{b2} = 3, \frac{c1}{c2} = \frac{10}{9}$ $\frac{a1}{a2} = \frac{b1}{b1} \neq \frac{c1}{c2} = \text{parallel lines}$ Ans11       For coincident lines $\frac{a1}{a2} = \frac{b1}{b2} = \frac{c1}{c2}$ $\frac{k+1}{5} = \frac{3k}{k} = \frac{15}{5}$ $\frac{k+1}{5} = 3$ $k = 14$ Ans12       For no solution: $\frac{a1}{a2} = \frac{b1}{b2} \neq \frac{c1}{c2}$ $\frac{k}{12} = \frac{3}{k} = \frac{-(k-3)}{-k}$ $\frac{k}{k} = 6$ Ans13 $x = 1, y = -1$	
Ans10 $\frac{a_1}{a2} = 3 \frac{b_1}{b2} = 3 \frac{c_1}{c2} = \frac{10}{9}$ $\frac{a_1}{a2} = \frac{b_1}{b2} \neq \frac{c_1}{c2} = \text{parallel lines}$ Ans11 For coincident lines $\frac{a_1}{a2} = \frac{b_1}{b2} = \frac{c_1}{c_2}$ $\frac{k+1}{5} = \frac{3k}{k} = \frac{15}{5}$ $\frac{k+1}{5} = 3$ k = 14 Ans12 For no solution : $\frac{a_1}{a2} = \frac{b_1}{b2} \neq \frac{c_1}{c_2}$ $\frac{k}{12} = \frac{3}{k} = \frac{-(k-3)}{-k}$ $K^2 = 36$ K = 6 Ans13 $x = 1, y = -1$ Ans14 $x = 2, y = 1$	
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k = 14         Ans12       For no solution : $\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$ $\frac{k}{12} = \frac{3}{k} = \frac{-(k-3)}{-k}$ K <sup>2</sup> = 36         K = 6         Ans13       x = 1, y = -1         Ans14       x = 2, y = 1	
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$\frac{\frac{k}{12} = \frac{3}{k} = \frac{-(k-3)}{-k}}{\frac{-k}{-k}}$ K = 36 K = 6 Ans13 x = 1, y= -1 Ans14 x = 2, y = 1	2
K = 6         Ans13 $x = 1$ , $y = -1$ Ans14 $x = 2$ , $y = 1$	2
K = 6         Ans13 $x = 1$ , $y = -1$ Ans14 $x = 2$ , $y = 1$	
K = 6         Ans13 $x = 1$ , $y = -1$ Ans14 $x = 2$ , $y = 1$	
Ans13 $x = 1$ , $y = -1$ Ans14 $x = 2$ , $y = 1$	
Ans14 $x = 2, y = 1$	3
	3
	3
a-b $a+b$ $3a+b-2$	
a=5b $a-2b=3$	
5b - 2b = 3 $b = 1$	
b = 1 so $a = 5$	
Ans16 $\frac{a_1}{2} - \frac{7}{2} \frac{b_1}{b_1} - \frac{2}{2}$	3
$a2^{-}5'b2^{-}3$	5
$\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$ : unique solution.	
On solving the equations we get,	
x = 3 and $y = -7$	
Ans17 $x + 3x + y = 180$	
4x + y = 180 - (i)	3
3y - 5x = 30 (ii)	3
On solving (i) and (ii)	3
	3
$ \begin{array}{l} \mathbf{x} = 30 \\ \boldsymbol{\angle} \mathbf{A} = 30^{\circ},  \boldsymbol{\angle} \mathbf{B} = 90^{\circ}  \boldsymbol{\angle} \mathbf{C} = 60^{\circ} \end{array} $	3

Ans18	Let $\frac{1}{2}$ = p and $\frac{1}{2}$ = q	3
711310	Let $\frac{1}{x-1} = p$ and $\frac{1}{y-2} = q$	
	The given equation becomes,	
	6p - 3q = 1 (i) 5p + q = 2 (ii)	
	5p + q = 2 (ii) or column (ii) and (iii) we get $\mathbf{P} = \begin{bmatrix} 1 \\ 0 \end{bmatrix}$ and $\mathbf{q} = \begin{bmatrix} 1 \\ 0 \end{bmatrix}$	
	on solving (i) and (ii) we get, $P = \frac{1}{3}$ and $q = \frac{1}{3}$	
	$\frac{1}{x-1} = \frac{1}{3}$ $\frac{1}{y-2} = \frac{1}{3}$	
	x = 4 $y = 5$	
Ans19	Let A's present age be x years and B's present age by y years.	3
	Five years ago,	
	A = (x - 5) years B (y-5) years	
	(x-5) = 3(y-5)	
	3y - x = 10 (i)	
	Ten years hence, $A = x + 10$ B $y + 10$ x + 10 = 2 (x + 10)	
	x + 10 = 2 (y+10) 2y - x = -10 (ii)	
	On solving (i) and (ii) we get, $x = 50$ years and $B = 20$ years	
Ans20	Let the number be x and demo be y then fraction becomes $\frac{x}{y}$	3
	$\frac{x-1}{y} = \frac{1}{3}$	
	3x - y = 3 (i)	
	$\frac{x}{y+8} = \frac{1}{4}$	
	4x - y = 8 (ii)	
	On solving (i) and (ii) we get $x = 5-12$ so require fractions 5/12.	
Ans21	2x + 4y = 10	4
	$y = \frac{5-x}{2} x 1 3 5 y 2 1 0$	
	x 1 3 5	
	y 2 1 0	
	2x + 6y = 12	
	3x + 6y = 12 $4-x$	
	$y = \frac{4-x}{2}$	
	x 2 0 4	
	y 1 2 0 on drawing the graphs we obtain parallel lines i.e. no solution.	
Ans22	By elimination method, $3x - 5y = 4$ (i) $9x - 2y = 7$ (ii)	4
711322	Multiply eq (i) by 3, we get $9x - 15y = 12$ (iii)	
	9x - 2y = 7 (ii)	
	Subtracting (ii) from (iii) we get,	
	9x - 15y = 12	
	9x - 2y = 7	
	-13y = 5 y = -5/12	
	Y = -5/13 Putting the value of v in equation i(i) we have	
	Putting the value of y in equation i(i) we have, $a_{-} = 2 \begin{pmatrix} -5 \\ -7 \end{pmatrix} = 7$	
	$9x - 2\left(\frac{-5}{13}\right) = 7$	
	$\mathbf{x} = \frac{9}{13}$	
	$\therefore$ required solution is $x = \frac{9}{13}, y = \frac{-5}{13}$	
Ans23	Let the digits at units place be x and tens place be y then number becomes $10 \text{ y} + \text{x}$	4
111323	No. formed by inter changing the digits $= 10x + y$	1
	(10y + x) + (10x + y) = 110	
	x + y = 10 (i)	
	10 y + x - 10 = 5 (x + y) + 4	
	4 x - 5 y = -14 (ii)	
	On solving (i) and (ii)	
	$\mathbf{x} = 4 \qquad \mathbf{y} = 6$	
	$\therefore$ NO is $10x6 + 4 = 64$	

Ans24	Let CP of table be Rs x and Cp of chair be Rs y.	4
711324	A/c to I condition,	4
	S.P of table = $x + \frac{10x}{100} = \frac{100x}{100}$	
	S.P of chairs = $y + \frac{25y}{100}$	
	So, $\frac{1to x}{100} + \frac{125y}{100} = 1050 - (i)$	
	A/C to $2^{nd}$ condition,	
	S.P of table = $x + \frac{25x}{100} = \frac{125x}{100}$	
	S.P o of chair = $y + \frac{10y}{100} = \frac{110y}{100}$	
	100 100	
	So, $\frac{125}{100}x + \frac{110y}{100} = 1065 =$ (ii)	
	On solving (i) and (ii) we get $x = 500$ , $y = 400$	
	∴ cp of table of Rs 500 and cp of chair is Rs 400.	<u> </u>
Ans25	Let one man alone can finish the work is x days and one boy can finish the work in y days then.	4
	One day work of one man = $\frac{1}{x}$ , One day work of one boy = $\frac{1}{y}$	
	$\therefore$ one day work of 8 men = $\frac{8}{x}$ , one day work of 12 boys = $\frac{12}{y}$	
	A/c to question, 10 $\left(\frac{8}{x} + \frac{12}{y}\right) = 1$	
	$\frac{30}{x} + \frac{120}{y} = 1$ (1)	
	and $14\left(\frac{6}{xx} + \frac{8}{y}\right) = 1$	
	$\frac{y}{x} + \frac{122}{y} = 1$ (2)	
	Now, put $\frac{1}{x} = u$ and $\frac{1}{y} = v$ in eq (1) and (2) we get	
	80u + 120v = 1 and 84u + 112 v = 1	
	By using cross multiplication, we have	
	$\frac{u}{-120+112} = \frac{-v}{-80+84} = \frac{1}{80x112-84x120}$	
	-120+112 $-80+84$ $80x112-84x120$	
	On solving further, $u = \frac{1}{140}$ and $v = \frac{1}{280}$	
	$\frac{1}{x} = \frac{1}{140}$ $\frac{1}{y} = \frac{1}{280}$	
	x = 140 $y = 280x = 140$ $y = 280$	
	$\therefore$ one man alone can finish the work in 140 days and one boy is 280 days.	
Ans26	x = 2, y = -1	4
Ans27	Rs 10, Rs 15	4
Ans28	(0,0), (4,4), (6,2)	4
711320		

## Test Paper Session 2017-18

## CLASS 10 SUBJECT Mathematics Chapter 4 Quadratic Equations

Ans1 D = b <sup>2</sup> - 4ac = (-b) <sup>2</sup> - 4(6) (2) = b <sup>2</sup> - 48 b <sup>2</sup> - 48 = 1 b <sup>2</sup> = 49 b = ± 7 Ans2 $\sqrt{2x^2 + 9} = 9$ Squaring both sides $2x^2 + 9 = 81$ $2x^2 = 72$ $x^2 = 36$ $x = \pm 6$ Ans3 $(\frac{1}{2})^2 + K(\frac{1}{2}) - \frac{5}{4} = 0$	1
$b^{2} - 48 = 1$ $b^{2} = 49$ $b = \pm 7$ Ans2 $\sqrt{2x^{2} + 9} = 9$ Squaring both sides $2x^{2} + 9 = 81$ $2x^{2} = 72$ $x^{2} = 36$ x = + 6	1
$b^{2} = 49$ $b = \pm 7$ Ans2 $\sqrt{2x^{2} + 9} = 9$ Squaring both sides $2x^{2} + 9 = 81$ $2x^{2} = 72$ $x^{2} = 36$ x = + 6	1
$b = \pm 7$ Ans2 $\sqrt{2x^2 + 9} = 9$ Squaring both sides $2x^2 + 9 = 81$ $2x^2 = 72$ $x^2 = 36$ $x = \pm 6$	1
Ans2 $\sqrt{2x^2 + 9} = 9$ Squaring both sides $2x^2 + 9 = 81$ $2x^2 = 72$ $x^2 = 36$ x = + 6	1
Squaring both sides $2x^2 + 9 = 81$ $2x^2 = 72$ $x^2 = 36$ x = + 6	1
$ \begin{array}{c} 2x^2 = 72 \\ x^2 = 36 \\ x = +6 \end{array} $	1
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$ \begin{array}{c} 2x^2 = 72 \\ x^2 = 36 \\ x = +6 \end{array} $	1
$x^2 = 36$ x = + 6	1
x = +6	1
Ans3 $\left(\frac{1}{2}\right)^2 + K\left(\frac{1}{2}\right) - \frac{5}{4} = 0$	1
All SS $\left(\frac{-}{2}\right)^2 + K(\frac{-}{2}) - \frac{-}{4} = 0$	'
K=2	
Ans4 For equal roots $D = 0$	1
$b^2 - 4ac = 0$	
$(1)^2 - 4xKxK = 0$	
1 - 4k2 = 0	
$K = \pm \frac{1}{2}$	
Ans5 $D = 0$	2
$\begin{array}{c} AIISS \\ b2 - 4ac = 0 \end{array}$	2
$(-2k)^2 - 4(k)(6) = 0$	
$4k^2 - 24k = 0$	
4k (k-6) = 0	
K = 0,6	
Ansó $10 x - \frac{1}{2} = 3$	2
10x + x = 3 $10x^2 - 1 = 3x$	
$10x^2 - 1 = 3x$	
$10x^2 - 3x - 1 = 0$	
$10x^2 - 5x + 2x - 1 = 0$	
5x (2x-1) + 1 (2x-1) = 0	
$x = -\frac{1}{5}, \frac{1}{2}$	
5	
Ans7 $15x^2 - 10\sqrt{6}x + 10 = 0$	2
$5(3x^2 - 2\sqrt{6}x + 2) = 0$	
$3x^2 - \sqrt{6}x - \sqrt{6}x + 2 = 0$	
$\sqrt{3}x (\sqrt{3}x - \sqrt{2}) - \sqrt{2} (\sqrt{3}x - \sqrt{2}) = 0$	
$(\sqrt{3}x - \sqrt{2}) \sqrt{3}x - \sqrt{2} = 0$	
$\mathbf{x} = \sqrt{\frac{2}{3}},  \sqrt{\frac{2}{3}}$	
Ans8 $D = b^2 - 4ac$	2
$(10)^2 - 4x13\sqrt{3} \times \sqrt{3}$	
= 100 - 156	
=-56	
No real roots	
Ans9 $1 \qquad bx + ax + ab$	2
$\frac{1}{a+b+x} - \frac{1}{abx}$	
abx = (bx+ax+ab)(a+b+x)	
$abx=abx+b^{2}x + bx^{2} + a^{2}x + abx + ax^{2} + a^{2}b + ab^{2} + abx$	
$0 = bx^{2} + ax^{2} + b^{2}x + a^{2}x + 2abx + a^{2}b + ab^{2}$	
$= x^{2}(a+b) + x (a^{2}+b^{2}+2ab) + ab(a+b)$	
$= (a+b) [x^2 + x (a+b)+ab]$	
$= x^2 + ax + bx + ab$	
= x (x + a) + b(x + a)	

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	0 = (x+b) (x + a) x = -b, -a	
Ans10	$\frac{x0}{3x^2 - 2\sqrt{6}x + 2} = 0$	2
	$3x^2 - \sqrt{6}x - 2 = 0$ $3x^2 - \sqrt{6}x - \sqrt{6}x + 2 = 0$	
	$x = \sqrt{2/3}, \sqrt{2/3}$	
Ans11	$abx^{2} + (b^{2} - ac) x - bc = 0$	2
	$abx^2 + b^2x - acx - bc = 0$	
	bx (ax+b) - c(ax+b) 0 $x = c/b = b/a$	
Ans12	$\frac{x = c/b, -b/a}{4\sqrt{5}x^2 - 17x + 3\sqrt{5}} = 0$	2
711312	$4\sqrt{5}x^{2} - 1/x + 5\sqrt{5} = 0$ $4\sqrt{5}x^{2} - 5x - 12x + 3\sqrt{5} = 0$	2
	$\frac{4\sqrt{5} \times (-5\sqrt{5})}{\sqrt{5} \times (4x - \sqrt{5}) - 3(4x - \sqrt{5})} = 0$	
	$(\sqrt{5} x - 3) (4x - \sqrt{5}) = 0$	
	$x = 3/\sqrt{5}, \sqrt{5}/4$	
Ans13	$ax^2 + a = a^2x + x$	3
	$ax^{2} - (a^{2}+1)x + a = 0$	
	$ax^{2} - a^{2}x - x + a = 0$ ax(x - a) - 1 (x - a) = 0	
	ax(x-a) - 1(x-a) = 0 (x-a) (ax-1) = 0	
	x = a, 1/a	
Ans14	$4\sqrt{3}x^2 + 5x - 2\sqrt{3} = 0$	3
	$4\sqrt{3}x^2 + 8x - 3x - 2\sqrt{3} = 0$	
	$4x (\sqrt{3}x + 2) - \sqrt{3} (\sqrt{3}x + 2) = 0$	
	$(4x - \sqrt{3})(\sqrt{3}x+2) = 0$	
	$x = \frac{\sqrt{3}}{4}, \frac{-2}{\sqrt{3}}$	
	$4 \sqrt{3}$	
Ans15	For real and equal roots $D = 0$	3
	$x^2 + kx + 64 = 0$ $x^2 - 8x + k = 0$	
	$D = b^{2} - 4ac = 0$ $k^{2} - 256 = 0$ D = b2 - 4ac = 64 - 4k = 0	
	$\begin{vmatrix} k^2 - 256 = 0 \\ k = \pm 16 \end{vmatrix} = 64 - 4k = 0 \\ k = 16 \end{vmatrix}$	
Ans16	$\frac{1}{D} = b2 - 4ac$	3
	= 48 - 48 = 0	
	Roots are real and equal	
	$3x^2 - 4\sqrt{3}x + 4 = 0$	
	$3x^2 - 2\sqrt{3}x - 2\sqrt{3}x + 4 = 0$	
	$(\sqrt{3}x-2)(\sqrt{3}x-2) = 0$	
	$\mathbf{X} = \frac{2}{\sqrt{3}}, \frac{2}{\sqrt{3}}$	
Ans17	$(c-a)^2 - 4(b-c) (a-b) = 0$	3
	$c^{2} + a^{2} - 2ac - 4 (ba - b^{2} - ac + bc) = 0$ $c^{2} + a^{2} - 2ac - 4ba + 4b^{2} + 4ac - 4bc = 0$	
	$c^{2} + a^{2} - 2ac - 4ba + 4b + 4ac - 4bc - 0$ $c^{2} + a^{2} + 2 (a) (c) - 2 (2b) (a) + (2b)^{2} + 2(2b(c) = 0$	
	$(c + a - 2b)^2 = 0$	
	c+a = 2b	
Ans18	$x^{2} + (x+1)^{2} = 421$	3
	$x^{2} + x^{2} + 2x + 1 = 421$ $2x^{2} + 2x - 420 = 0$	
	$2x + 2x - 420 = 0$ $x^2 + x - 210 = 0$	
Ans19	$\frac{x+1}{x+1} + \frac{x-2}{x+1} = 3$	3
	$\frac{x+1}{x-1} + \frac{x-2}{x+2} = 3$ x <sup>2</sup> + 3x - 10 = 0	
	x + 3x - 10 = 0 x = 2, -5	
		I
Ans20	$x = \frac{+6 \pm \sqrt{36 + 40}}{40} = \frac{-6 \pm \pm \sqrt{76}}{40}$	3

	$=\frac{+6\pm 2\sqrt{19}}{10}= =\frac{-3\pm 19}{10}$	
A		
Ans21	Let x be the usual speed,	4
	$\frac{300}{x} - \frac{300}{x+5} = 2$	
	x = -30, 25	
	$\therefore$ usual speed of the train = 25 km/hrs	
Ans22	$\frac{1}{2} \times 5x \times (3x - 1) = 60$	4
	-	
	x = 3, -8/3 L = 5x3 = 15, B = (3x-1) = 8	
A 00	$H = \sqrt{L^2 + B^2} = \sqrt{15^2 + 8^2} = 17 \text{ cm}$	
Ans23	$\frac{6500}{x+15} + 30 = \frac{6500}{x}$	4
	$x^2 + 15x - 3250 = 0$	
	(x+65)(x-50)=0	
	x = -65, +50	
	$\therefore$ neglecting negative number, x= 50	
Ans24	Let num. be x and then deno is x+2 and fraction is $\frac{x}{x+2}$	4
	x $x+2$ $34$ $x+2$	
	$\left \frac{x}{x+2} + \frac{x+2}{x} - \frac{34}{15}\right  = \frac{34}{15}$	
	$x^2 + 2x - 15 = 0$	
	(x+5)(x-3)	
	x = 3 neglecting negative value.	
	$\therefore$ fraction = $\frac{3}{5}$	
Ans25	Let B alone takes x days to finish the work and A alone takes x- 6 days.	4
	A/c to question, $\frac{1}{x} + \frac{1}{x-6} = \frac{1}{4}$ $x^2 - 14x + 24 = 0$	
	$x^{2} - 14x + 24 = 0$	
	(x-12)(x-2) = 0	
	x = 12, 2	
	But x cannot be less than 6 so we take $x = 12$	
	$\therefore$ B can finish the work in 12 days.	
Ans26	Let the speed of stream is x km/hr	4
	Speed in upstream = $(15-x)$ km/hr speed in down stream = $(15+x)$ km/hr	
	$\frac{30}{30} + \frac{30}{30} = 4\frac{1}{30}$	
	$\begin{array}{c} 15+x & 15-x & 2\\ -x^2 + 225 - 200 = 0 \end{array}$	
	x + 225 - 200 = 0 $x = \pm 5$	
	$\therefore$ speed of stream = 5 km/hr	
Ans27	Let time taken by tap of larger diameter = $x$ hrs	4
	Let time taken by tap of smaller diameter = $x + 2$ hrs	
	A/C to question, $\frac{1}{x} + \frac{1}{x-2} = \frac{12}{35}$	
	$ \begin{cases} x^{2} - 23x - 35 = 0 \end{cases} $	
	(6x+7) (x-5) = 0 x = -7/6, 5	
	Neglecting negative value because time can't be $-ve$ .	
	$\therefore$ x = 5 hrs.	
	Smaller tap can fill the tank in 7 hrs and larger tank in 5 hrs.	
Ans28	a) Let the cost price of the toy be Rs x. Then $gain = x\%$	4
	Gain = Rs $(x \times \frac{x}{100}) = \frac{x^2}{100}$	
	SP = C.P + gain	
	$24 = x + \frac{x^2}{100}$	
	$x^2 + 100 x - 2400 = 0$	
	(x-20)(x+120) = 0	
	x = 20, -120	
	C.P of is Rs. 20	
1	b) Quadratic Equation c) Genuine Profit	

## Test Paper Session 2017-18

# CLASS 10 SUBJECT Mathematics Chapter 5 Arithmetic Progression

	10 01	
Ans1.	a - 18 = -3 - b	1
	a+ b = 15	
Ans2	$a=3, d=1-3=-2, a_5=3+(5-1)(-2)$ $a_5=-5$	1
Ans3	$a = -2$ , $d = -2$ , $a_1 = -2$ , $a_2 = -4$ , $a_3 = 6$ , $a_4 = -8$	1
Ans4	4k-6 - k-2 = 3 k-2 - 4k + 6	1
	3k - 8 = -k + 4	
	4k = 12	
	k= 3	
Ans5	Let $n^{th}$ term of A.P be zero; $a_n = 0$	2
	a+(n-1) d = 0	
	120 + (n-1) (-4) = 0	
	n = 31	
	$\therefore$ The first negative term will be $31 + 1 = 32^{nd}$ term.	
Ans6	If $a_n = 184$ , $a = 3$ , $d = 4$	2
	$a_n = a + (n-1) d$	
	184 = 3 + (n-1)4	
	n = 46.25	
	Thus 184 is not term of given A.P.	
Ans7	2x + 1 - x - 3 = x - 7 - 2x - 1	2
	x = -3	
Ans8	Put $a_n = 100$ , $a = 25$ , $d = 3$	2
	$a_n = a + (n-1) d$	
	100 = 25 + (n-1) d	
	N = 26	
	∴ 100 is a term of given A.P	
Ans9	Let $a = 3, d = 7$	2
	$a_n = a_{13} + 84$	
	a + (n-1) d = a + 12d + 84	
	n = 25	
Ans10	$5a_5 = 8a_8$	2
	5(a+4d) = 8(a+7d)	
	a + 12d = 0	
	$a_{13} = 0$	
Ans11		2
	a + d = 10; $a + 4 d = 31$	
	d = 7 and $a = 3$	
	a = 3, b = 17, c = 24	
Ans12	$a_8 = 0$ $a = -7d$	2
	$a_{38} = a + 37d = -7d + 37d = 30d$	
	$a_{18} = a + 17d = -7d + 17d = 10d$	
	$a_{38} = 3 \times 10d = 3 \times a_{18}$	
	$\therefore a_{38} = 3a_{18}$	
Ans13	a = 254, d = -5	3
	$a_{10} = a + 9d = 254 + 9 (-5) = 209$	-
	$\therefore 10^{\text{th}}$ term from the back is 209.	
Ans14	$a_n = S_n - S_{n-1}$	3
	$a_{n-1} = S_{n-1} - S_{n-2}$	
	$S_n - 2S_{n-1} + S_{n-2} = S_n - S_{n-1} - S_{n-1} + S_{n-2}$	
	$= (S_n - S_{n-1}) - (S_{n-1} - S_{n-2})$	
	$= T_n - T_{n-1} = d$	
Ans15	$a = 101, d = 7, a_n = 997$	3
	$a_n = a + (n-1) d$	-
I		

	997 = 101 + (n-1) 7	
A	n = 129	2
Ans16	Let the number of terms be n and $a_n$ be x.	3
	a = -4, $d = 3x = -4 + (n-1)^3$	
	$n = \frac{x+7}{3}$	
	$\frac{(x+7)(x-4)}{6} = 437$	
	x = 50 or -53	
	Neglecting –ve values, $x = 50$	
Ans17	The series as per question is 102,108,114,, 198 is an AP	3
711517	198 = 102 + (n-1) 6	5
	n = 17	
	$S_n = S_{17} = 17/2 (102 + 198) = 2550$	
Ans18	$a = 9, d = -3 S_n = -216$	3
	n/2 [2a + (n-1)d] = -216	-
	n/2 [2(9) + (n-1) (-3) = -216	
	$n^2 - 7n - 144 = 0$	
	n = -9  or  16	
	$\therefore$ n = 16 neglacting – ve values	
Ans19	$S_n = 3n^2 - 4n$	3
	$S_1 = -1, S_2 = 4$	
	$a_1 = S_1 = -1$	
	$a_2 = S_2 - S_1 = 4 - (-1) = 5$	
	d = 6	
Ans20	$     \begin{array}{l}       a_{12} = (-1) + 11x \ 6 = 65 \\       a = 12, \ a_n = 264, \ d = 4     \end{array} $	2
AIISZU		3
	$\mathbf{n} = \frac{a_n - a}{a} + 1 = \frac{264 - 12}{4} + 1 = 64$	
	There are 64 ,multiples of 4 that lie between 11 and 266.	
Ans21	$S_4 = 280, d = 20 n = 4$	4
	$S_n = \frac{n}{2} [2a + (n-1)d]$	
	$S_n = \frac{4}{2} [2a + 3x 20]$	
	= 2(2a + 60)	
	$\frac{280}{2} = 2a + 60$	
	a = 40	
	a = 4.0 $\therefore$ four prizes are Rs 40,60,80 and Rs 100	
Ans22	Let $1^{st}$ term = a, common diff = d	4
AUSZZ	$S_m = S_n$	4
	$\frac{m}{2} [2a + (m-1) d] = \frac{n}{2} [2a + (-1) d]$	
	2a + (m+n-1)d = 0	
	$S_{m+n} = \frac{m+n}{2} [2a + (m+n-1)d]$	
	$=\frac{m+n}{2} \mathbf{x} \ 0 = 0$	
Ans23	a = 20, d = 15, S = 3250	4
	$S_n = \frac{n}{2} [2a + (n-1)d]$	
	$3250 = \frac{n}{2} [2a + (n-1) \ 15]$	
	n = -65, 20	
A	∴ Man will repay loan after 20 months.	4
Ans24	a + 2d = 11 (1) a + 9d = 2 (a + 4d) + 1	4
	a+9d = 2 (a+4d) + 1 -a + d = 1 (2)	
	-a + d = 1 (2) Solving (1) and (2)	
	a = 3, d = 4	
	$S_3 = \frac{30}{2} [6+2a \times 4]$	
	= 1830	
Ans25	$a_3 + a_7 = 6$ ; $a_3 \ge a_7 = 8$	4

	2a + 8d = 6; $(a+2d)(a+6d) = 8$	
	a + 4d = 3 = a = 3 - 4d	
	(3-4d+2d)(3-4d+6d) = 8	
	(3+2d)(3-2d) = 8	
	$9-4d^2 = 8$	
	$d = -\frac{1}{2}, \frac{1}{2}$	
	If $d = \frac{1}{2}$ ; $a = 1$ and $S_{20} = 115$	
	If $d = -\frac{1}{2}$ ; $a = 5$ and $S_{20} = 5$	
Ans26	n = 21	4
	Middle most term $=\frac{21+1}{2}=11^{\text{th}}$	
	3 middle most terms are 10 <sup>th</sup> , 11 <sup>th</sup> , 12 <sup>th</sup>	
	$a_{10} + a_{11} + a_{12} = 129$	
	a+9d + a + 10d + a + 11d = 129	
	a + 10d = 43 (1)	
	$a_{19} + a_{20} + a_{21} = 237$	
	a + 18d + a + 19d + a + 20d = 237	
	a + 19d = 79	
	on solving (1) and (2),	
	9d = 36	
	d = 4	
	a = 43 - 40 = 3	
Ans27		4
	$L_1 = \pi r_1 = \pi (1) = \pi cm$	
	$L_2 = \pi r_2 = \pi \ (2) = 2\pi \ cm$	
	$L_3 = 3 \pi$ and $L_{11} = 11 \pi cm$	
	Total length of the spiral = $L_1 + L_2 + \cdots + L_{11} = \pi \left( \frac{11x12}{2} \right) = 207.24$ cm.	
Ans28	$S_1 = \frac{n}{2} [2a + (n-1)d]$	4
	$S_2 = \frac{2n}{2} [2a + (2n-1)d]$	
	$S_3 = \frac{3n}{2} [2a + (3n-1)d]$	
	3 ( $S_2 - S_1$ ) = 3 [ $\frac{2n}{2}$ {2a + (2n-1) d} - $\frac{n}{2}$ {2a + (n-1) d}]	
	$= 3 \left[ \frac{n}{2} (2a + 3nd - d) \right]$	
	$=\frac{3n}{2}[2a+(3n-1)d]$	
	$=\mathbf{\tilde{S}}_{3}$	

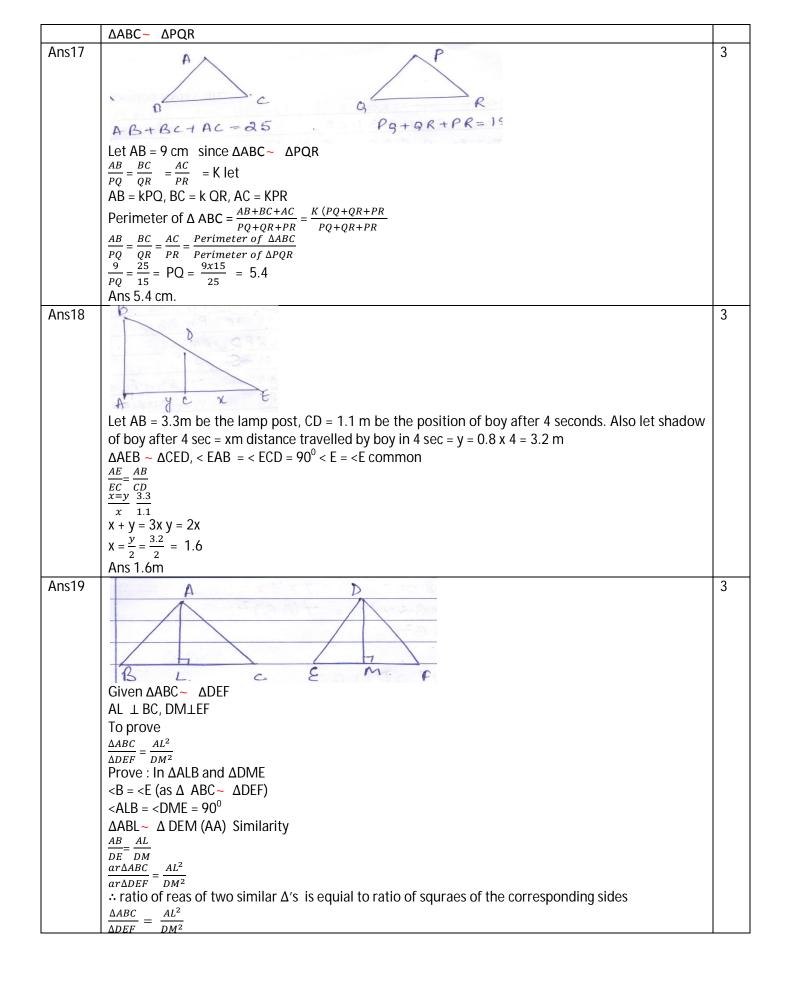
## Test Paper Session 2017-18

CLASS 10	<b>SUBJECT</b>	Mathematics	<b>CHAPTER- 6 Triangles</b>
			•

Ans	$25^2 = 24^2 + 7^2 = 625 = 576 + 49$	1
Q2.	$\therefore \text{ the given } \Delta \text{ form a right } \Delta \text{ form a right } \Delta$ $  \therefore \Delta A \text{ OB } \sim \Delta \text{DOC (A A)}$	1
Q3.	$\frac{AB}{DF} = \frac{BC}{EF} = \frac{AC}{ED} \Delta ABC \sim \Delta DFE S.S.S$ $A \qquad E \qquad 12c \qquad F$ $< F = < B = 60^{\circ}$ $B \qquad 6c^{\circ} \qquad C \qquad D$	1
Q4.	XYIIBC $\Delta AXY \sim \Delta ABC AA$ $\therefore \frac{AX}{AB} = \frac{XY}{BC} = \frac{AY}{AC}\frac{1}{1+3} = \frac{XY}{6} XY = \frac{6}{4} = \frac{3}{2} = 1.5 cm$	1
Ans5	Given A square ABCD and equilateral $\Delta$ BCE and $\Delta$ ACF on one side BC of square and diagonal aC respectively. To Prove : or $\Delta$ BCE = $\frac{1}{2}$ as $\Delta$ ACF Since each of $\Delta$ BCE and $\Delta$ ACF is an equilateral $\Delta$ so each angle of each of them is 60 <sup>0</sup> Hence $\Delta$ BCE ~ $\Delta$ ACF $\frac{Ar \Delta BCE}{ar \Delta ACF} = \frac{BC^2}{AC^2} = \frac{BC^2}{2(BC)^2} = \frac{1}{2}$ ar $\Delta$ BCE = $\frac{1}{2}$ ar $\Delta$ ACF	2
Ansó	Let AB and CD given vertically poles. Then AB = 6 cm, CD = 11m aC = 12m Draw BEIIAC then CE = AB = 6m, BE = AC = 12m DE = CD-CE = 11m - 6m = 5m $\Delta BED BD^2 = BE^2 + DE^2 = 12^2+5^2 = 144+25$ BD = 13m	2

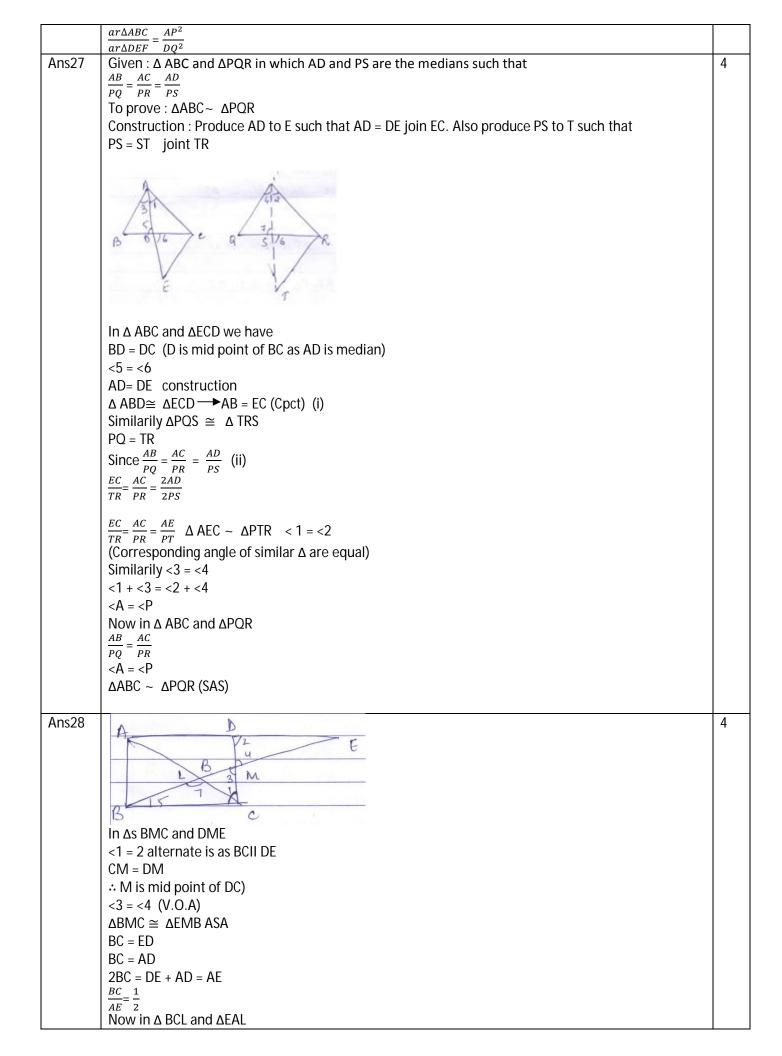
Ans7	$\ln \Delta ABD = AB^2 = BD^2 + AD^2$	2
	$C^2 = (a + x)^2 + h^2$	
	$C^2 = a^2 + 2ax + x^2 + h^2$	
	$C^2 = a^2 + 2ax + h^2$	
	Therefore : $h^2 + x^2 = b^2$	
	A	
	19	
	C	
	hh	
	/ / /	
	Barcard	
		-
Ans8	$\Delta CBA \Delta CDE$	2
	$\frac{c}{b+c} = \frac{x}{a}$	
	i. a l	
	$X = \frac{ac}{b+c}$	
	B/143 143	
	Dimb DC L	
Ans9	$AB^2 = AC^2 + AC^2$	2
	$AB^2 = AC^2 + BC^2$	
	By converse of Pythagoras theorem $\Delta$ is right $\Delta$ .	
	D C.	
Ans10	Given $\Delta$ ABC ~ $\Delta$ DEF	2
	$ar \Delta ABC BC^2$	
	$\overline{ar \Delta DEF} = \overline{EF^2}$	
	$\frac{9}{10} = \frac{BC^2}{EF^2} \qquad \qquad \frac{9}{16} = \frac{BC^2}{(4.2)^2}$	
	$10 EF^2$ 16 (4.2) <sup>2</sup> DC <sup>2</sup> 9x4.2x4.2	
	$BC^{2} = \frac{9x4.2x4.2}{16}$ $BC = \frac{3x4.2}{4} = \frac{12.6}{4}$	
	$BC = \frac{3x^{4}.2}{4} = \frac{12.6}{4}$	
	= 3.15cm	
Ans11	∴ DE II BC	2
	<a common<="" is="" td=""><td></td></a>	
	<ade <abc="" =="" corresponding<="" td=""><td></td></ade>	
	Δ ADE~ ΔABC by AA	
	B C	-
Ans12	AB = 12  cm, AD = 8  cm	2
	AE = 12  cm, AC = 18  cm	
	$\frac{AD}{AB} = \frac{AE}{AC}$ $\frac{B}{12} = \frac{12}{18} \rightarrow \frac{2}{3} = \frac{2}{3}$	
	$\frac{8}{2} = \frac{12}{2} \rightarrow \frac{2}{2} = \frac{2}{2}$	
	AD AE	
	$\frac{AD}{AB} = \frac{AE}{AC}$	
A 10	By converse of BPT, DE II BC	_
Ans13	Given $\triangle ABC$ in which the bisector AD of <a bc="" d.<="" in="" meets="" td=""><td>3</td></a>	3
	In Prove $\frac{DD}{DC} = \frac{AD}{AC}$	
	To Prove $\frac{BD}{DC} = \frac{AB}{AC}$	

		1
	Construction : Draw CE II DA meeting BA produced in E.	
	Proof	
	<1 = <2 alternate app	
	<3 = <4 corresponding <	
	But <1 = <3 given	
	<2 = <4	
	AE = AC	
	∴ CE II DA	
	$\frac{BD}{DC} = \frac{BA}{AE} \text{ ie. } \frac{BD}{DC} = \frac{AB}{AC}$	
	DC AE DC AC	
	$\therefore$ AC = AE	
Ans14	In Δ ABC, DEII BC	3
	$\frac{AD}{A} = \frac{AE}{A}$ (BPT)	
	$BD_{Ar=3}CE_{Rr=7}$	
	$\frac{AD}{BD} = \frac{AE}{CE} (BPT)$ $\frac{4x-3}{3x-1} = \frac{8x-7}{5x-3}$ (4x-3) (5x-3) = (8x-7) (3x-1)	
	(4x-3)(5x-3) = (8x-7)(3x-1)	
	$20x^2 - 27x + 9 = 24x^2 - 29x + 7$	
	$4x^2 - 2x - 2 = 0$	
	$2x^2 - x - 1 = 0$	
	$2x^2 - 2x + x - 1 = 0$	
	2x(x-1) + 1(x-1) = 0	
	(2x+1)(x-1) = 0	
	X = 1, $x = -1/2$	
	AD = [4(-1/2) - 3] = -5 Not Applicable.	
	x = 1 Ans	
Ans15	Draw EO II AB II CD	3
	Now in $\triangle$ ADC EO II DC A B	
	$\frac{AE}{ED} = \frac{AO}{OC}$ (BPT)	
	In $\Delta$ BD EO II AB	
	$\frac{AE}{ED} = \frac{BO}{OD}$	
	From 1 and $2\frac{AO}{OC} = \frac{BO}{OD}$	
	OC OD	
Ans16	P	3
	H ()	
	DCQ S.R.	
	DCG S.R.	
	Given $\Delta$ ABC and $\Delta$ PQR in which AD ad PS are te medians such that	
	$\frac{AB}{PQ} = \frac{BC}{QR} = \frac{AD}{PS}$	
	To Prove $\triangle ABC \sim \triangle PQR$	
	AB = C + AB = BC + AD	
	Proof since $\frac{AB}{PQ} = \frac{BC}{QR} = \frac{AD}{PS}$	
1	AB 2BD AD	
	$\overline{PO} - \frac{1}{2OS} - \frac{1}{PS}$	
	$\frac{AB}{PQ} = \frac{2BD}{2QS} = \frac{AD}{PS}$ $\therefore$ AD and PS are median	
	: AD and PS are median	
	: AD and PS are median	
	$\therefore \text{ AD and PS are median} \\ \frac{AB}{PQ} = \frac{BD}{QS} = \frac{AD}{PS}  \Delta \text{ ABC}  \sim  \Delta \text{PQS (SSS)} $	
	$\therefore \text{ AD and PS are median}  \frac{AB}{PQ} = \frac{BD}{QS} = \frac{AD}{PS} \Delta \text{ ABC} \sim \Delta \text{PQS (SSS)}  $	
	$ \therefore \text{ AD and PS are median}      \frac{AB}{PQ} = \frac{BD}{QS} = \frac{AD}{PS} \Delta \text{ ABC} \sim \Delta \text{PQS (SSS)}      \Delta$ ) Now in $\Delta \text{ABC}$ and $\Delta \text{PQR}$	
	$\therefore \text{ AD and PS are median}  \frac{AB}{PQ} = \frac{BD}{QS} = \frac{AD}{PS} \Delta \text{ ABC} \sim \Delta \text{PQS (SSS)}  $	



Ans20	Let $AB = AC = BC = 6x$	3
7 11 10 2 0	$BD = 1/3 BC = \frac{1}{3} 6x = 2x$	Ũ
	5	
	BE = EC = BC/2 = 3x	
	(Perpendicular bisects the base in an equilaten $\Delta$ )	
	DE = BE - BD = 3x - 2x = x	
	$AB^2 = AE^2 + BE^2 = AD^2 - DE^2 + BE^2$ Pythagoras theorem	
	$(6X)^{-} = AD^{-} - X^{-} + (3X)^{-}$	
	$AD^2 = 36x^2 + x^2 - 9x^2 = 28x^2$	
	$9AD^2 = 9 (28) x^2 = 9x7x4x^2$	
	$= 7(36)x^2 = 7(AB)^2$	
	$9AD^2 = 7AB^2$	
Ans21	Draw DE LAB	4
	CF LAB produced	
	$\Delta AED$ and $\Delta BFC$	
	AD = BC	
	<DEF = $<$ CFB each 90 <sup>o</sup>	
	$DE = CF \therefore$ perpendicular distance between two parallel lines	
	$\Delta AED \sim \Delta BFC (RHS)$	
	AE = BF	
	LHS $AC^2 + BD^2 = (AF^2 + CF^2) + (DE^2 + BE^2)$	
	$(AB + BF)^{2} + (BC^{2} - BF^{2}) + AD^{2} - AE^{2} + (AB - AE)^{2}$	
	$AB^{2} + BF^{2} + 2AB.BF + BC^{2} - BF^{2} + AD^{2} - AE^{2} + (AB - AE)^{2}$	
	$AB^{2} + BFx + 2AB BF + BC^{2} - BF^{2} + AD^{2} - AE^{2} + AB^{2} + AE^{2} - 2AB. AE$	
	AE = BF, AB = CD	
	$AC^2 + BD^2 = AB^2 + BC^2 + CD^2 + DA^2$ Hence Proved	
Ans22	Given : ABCD is trapezium AB II CD and PQII DC	4
	PD = 18  cm, BQ = 35  cm QC = 15  cm	
	To find AD	
	Proof In trapezum ABCD	
	ABITCD, POTIDC	
	AB II CD II PQ	
	In ΔBCD OQ II DC	
	$\frac{BO}{OD} = \frac{BQ}{QC} \text{ (BPT)}$	
	In $\Delta DAB$ , POIIAB $\frac{BO}{OD} = \frac{AP}{PD}$ (BPT)	
	$\frac{AP}{PD} = \frac{BQ}{QC}$	
	$\frac{AP}{18} = \frac{35}{15}$	
	$AP = \frac{35}{15}X \ 18 = 7X6 = 42 \ cm$	
	AD = AP + PD = 42 + 18 = 60  cm	
Ans23		4
	Given $\triangle$ PQR in which $\bigcirc$ N $\perp$ PR and PNxNR = $\bigcirc$	
	To prove $<$ PQR = 90 <sup>0</sup>	
	Poof in Δ QNP and ΔQNR	
	QN1 PR	
	$<2 = <1 = 90^{\circ}$	
	$QN^2 = NR X NP$	
	$\frac{QN}{NR} = \frac{NP}{QN} \rightarrow \frac{QN}{NP} = \frac{NR}{QN}$	
	$\Delta QNR \sim \Delta PNQ SAS$	
	$<3 = $	
	< R = < 4	
	$IN \Delta PQR$	
	< P + PQR + < R = 180	
	<7 + 700 + <8 = 100 <3 + 4 + <3 + <4 = 180	
1		1

	2(<3+4) = 180	
	$<3 + <4 = 90^{\circ} < PQR = 90^{\circ}$	
Ans24	Given $\triangle ABC$ in which AD DB = 3CD To Prove $2AB^2 = 2AC^2 + BC^2$ Proof : Since DB = $3CD  \frac{DB}{CD} = \frac{3}{1}$ DB = $3x \qquad CD = x$ $\frac{DB}{BC} = \frac{3x}{4x} = \frac{3}{4} \qquad DB = \frac{3}{4}BC$ $\frac{DC}{BC} = \frac{x}{4x} = \frac{1}{4} \qquad DC = \frac{1}{4}BC$ By Pythagoras theorem $AB^2 = AD^2 + BD^2$	4
A	$= AC^{2} - DC^{2} + BD^{2}$ $AC^{2} - \frac{1}{16}BC^{2} + \frac{9}{16}BC^{2}$ $AC^{2} + \frac{8}{16}BC^{2}$ $AC^{2} + \frac{1}{2}BC^{2}$ $2AB^{2} = 2AC^{2} + BC^{2}$ Given : ABC is right $\Delta$ , right angled at C, p is the length of perpendicular from C to AB	
Ans25	Proopf : a) an $\triangle ABC = \frac{1}{x} X AB X CD$ $= \frac{1}{2} Cp$ also as $\triangle ABC = \frac{1}{2} AC X BC$ $= \frac{1}{2} ba$ $\frac{1}{2} cp = \frac{1}{2} ba \rightarrow pc = ab$ $c = \frac{ab}{p}$ In $\triangle ABC$ $c^2 = a^2 + b^2$ $\frac{1}{p^2} = \frac{a^2 + b^2}{a^2b^2} = \frac{a^2}{a^2b^2} + \frac{b^2}{a^2b^2}$	4
Ans26	Given Δ ABC ~ ΔDEF, AP and DQ are the medians of ΔABC and ΔDEF respectively. To prove $\frac{ar \Delta ABC}{ar \Delta DEF} = \frac{AP^2}{DQ^2}$ Proof : AP and DQ are medians $\therefore$ BP = PC and EQ = QF Given Δ ABC ~ Δ DEF $= \frac{AB}{DE} = \frac{AC}{DF} = \frac{BC}{EF} < A = < C = \frac{AB}{DE} = \frac{BC}{EF} \longrightarrow \frac{AB}{DE} = \frac{2BP}{2EQ} = \frac{BP}{EQ}\Delta ABP ~ ΔDEQ SAS\frac{\Delta ABC}{\Delta DEF} = \frac{AB^2}{DE^2}\therefore the ratio of areas of two similar Δs is ratio of squares of their corresponding side from 1 and 2$	4



<5 = <6 ale	rnate		
<7 = <8			
$\Delta$ BCL ~ $\Delta$	EAL		
$\frac{BC}{D}$			
$\begin{array}{c} \overline{EA} & - \\ \overline{EL} \\ 1 & BL \end{array}$			
$\frac{1}{2} = \frac{BL}{FI} \longrightarrow 1$	EL = 2BL		

#### THE ASIAN SCHOOL, DEHRADUN Test Paper Session 2017-18 CLASS 10SUBJECT: Mathematics CHAPTER- 7 Coordinate Geometry

	CLASS 10SUBJECT: Mathematics CHAPTER- 7 Coordinate Geometry	
Ans1	(K, 2K) (3K, 3K) (3,1)	1
	K(3k-1) + 3K(1-2K) + 3(2K-3K) = 0	
	On solving	
	K = -1/3	
Ans2	-1	1
Ans3	0	1
Ans4	С	1
Ans5	$x = \frac{3+14}{3} = \frac{17}{3}$ Ans: quadrant IV	2
	$x = \frac{3}{3}$ Anis. quadrant $1^{\circ}$	
	$y = \frac{4-12}{3} = \frac{-8}{3}$	
Ans6	(0,-1)	2
Ans7	$\frac{a}{3} = \frac{-2-6}{2}$	2
7 1157		2
	a = -12	
Ans8	(8,1) (k,-4) (2,-5)	2
	8 (-4+5) + k (-5-1) + 2 (1+4) = 0	
	8 - 6 k + 10 = 0 K - 2	
Ans9	K = 3 Let ratio be k: 1	2
AU24		
	$\frac{-2}{7} = \frac{2k-2}{k+1}$	
	-2 k - 2 = 14 k - 14	
	12 = 16k	
	k = 3:4	
Ans10	$x = \frac{1-2}{1+2} = \frac{-1}{3}$ Point (-1/3,0)	2
Ans11	Let A=(1,2), B=(1,0),C=(4,0),D=(a,b)	2
	M.P. of AC = $\left(\frac{1+4}{2}, \frac{2+0}{2}\right)$	
	M.P. of BD = $\left(\frac{a+1}{2}, \frac{b+0}{2}\right)$	
	$\therefore$ on comparing $a = 5$ ; $b = 2$	
	Point D (5,2)	
Ans12	Same as answer 12	2
Ans13	Let ratio be K : 1	
	$0 = \frac{3k-2}{k+1} : K = 2/3$	
	$a_{k+1} = 2.3$ Ratio = 2:3	
Ans14	Ratio = 2:5 PO	
AUS14		
	$(x,2x) \sqrt{10}$ (2,3)	
	$PQ = \sqrt{10}$	
	$\sqrt{(x-2)^7 + (2x-3)^2} = \sqrt{10}$	
	Squaring and solving	
	$5x^2 - 16x + 3 = 0$	
	(5x - 1)(x-3) = 0 x = 1/5 · x = 3	
	x = 1/5; $x = 3$	
Ans16	P = (2,5) Q = (x, -3) R = (7,9)	
7.1310	PQ = QR	
	$\frac{1}{\sqrt{(x-2)^2 + (-3-5)^2}} = \sqrt{(7-x)^2 + (9+3)^2}$	
	Squaring both sides and solving ; 10x = 49 + 144 - 4 - 64	
	10x = 49 + 144 - 4 - 64 10x = 125	
	10x - 125 x = 25/2	
Ans17	Let point P is equidistant from $A(3,2)$ and B (3,-2)	
7 113 17	Lee point 10 equitoistaile from (1(0,2) and D (0, 2)	
		1

	$\sqrt{(x-3)^2 + (y-2)^2} = \sqrt{(x-2)^2 + (y+3)^2}$	
	$x^{2} + 9-6x + y^{2} + 4 - 4y = x^{2} + 4-4x + y^{2} + 9 + 6y$	
	on simplifying	
	x + 5y = 0	
Ans18		
711510	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	
	By section F	
	$2 = \frac{3k-3}{k+1}$	
	5 = k	
	K = 5/1: Ratio is 5 : 1	
A == 10		
ANS 19	Area is zero: hence $1/(1 - 10) + 5/(1 - 10) + 3/(4 - 10) = 15$	
	$\frac{1}{2} [2 (k - 10) + 5 (10 - 4) + 3 (4 - k) = 15]$	
	2 k - 10 + 30 + 12 - 3k = 30	
	-k = 30 - 30 + 8	
	K = - 8	
Ans20	Let point $P(x,y)$ is equidistant from $A(3,2)$ and $B(3,-2)$ implies PA=PB	
	$\sqrt{(x-3)^2 + (y-6)^2} = \sqrt{(x-3)^2 + (y-4)^2}$	
	$x^{2} + 9 - 6x + y^{2} + 36 - 12y = x^{2} + 9 + 6x + y^{2} + 16 - 8y$	
	-12x - 4y = 25 - 45	
	-12x - 4y = -20	
	3x + y = 5	
Ans21	Let ratio be K: 1	
711321		
	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	
	(-3,1) $(-0,2)$ $(-0,2)$	
	$-6 = \frac{-8k-3}{k+1}$	
	6 k + 6 = 8 k + 3	
	K = 3/2	
	Ratio = 3: 2	
	$\frac{27}{1} + 1$ 20	
	a $=\frac{9k+1}{k+1}$ implies $a = \frac{\frac{27}{2}+1}{\frac{3}{2}+1} = \frac{29}{5}$	
	$\frac{1}{2}+1$ 5	
Ans22	1(7-1) - 4(1-2) + k(2-7) = 0	
AIISZZ	6 + 4 - 5k = 0	
	K = 2	
A pc 2 2	Let ratio be $K: 1$	
Ans23		
	$\frac{A K 1 B}{(1,3) (x,y) (2,7)}$	
	(1,3) $(X,Y)$ $(2,7)$	
	$x = \frac{2k+1}{k+4}$ $y = \frac{7k+3}{k+4}$	
	$ x = \frac{2k+1}{K+1} \qquad y = \frac{7k+3}{K+1} \\ 3 x + y - 9 = 0 $	
	2(2K+1) + (7K+3) = 0	
	$3\left(\frac{2K+1}{K+1}\right) + \left(\frac{7K+3}{K+1}\right) - 9 = 0$	
	6 k + 3 + 7 K + 3 - 9 - 9 k = 0	
	4k = 9 - 3 - 3	
	4 k = 3	
	$K = \frac{3}{4}$ Ratio = 3 : 4	
10001	4	
Ans24	Similar to question no. 20	
Ans25		
	B (a,b)	
	(0,0) A(p,0)	
	C (0,-3)	

	By MPF $0 = \frac{a+0}{2}, 0 = \frac{b-3}{2}$	
	$0 = \frac{1}{2}, 0 = \frac{1}{2}$ a = 0; b = 3	
	a = 0, b = 3 point B (0,3)	
	BC = 6	
	AB = 6	
	$\sqrt{(P-0)^2 + (0-3)^2} = 6$	
	$P^2 + 9 = 36$	
	$\mathbf{P} = 3\sqrt{3}$	
	Point : A $(3\sqrt{3},0)$	
Ans26	(0,-1) $Q(2,1)$ $B$ $R(0,3)$ $C$	
	Area of $\Delta PQR = \frac{1}{2} [0 (1-3) + 2 (3+1) + 0 (-1-1)]$ = $\frac{1}{2} (-2+8) = 3$ Area of $\Delta ABC = 4$ x area of PQR = 4 x 3 = 12 sq. units	

		Test Paper Session 2017-18		
	CLASS 10	SUBJECT Mathematics	<u>CHAPTER-8 &amp; 9</u>	
Ans1	<u>tan A +tanB</u>			1
	$\cot A + \cot B$			
	= tan A + tanB			
	$\perp$ + $\perp$			
	tan A tan B			
	= tan A + tan B			
	$(\tan B + \tan A) \tan A \tan B$			
	= tan A tan B			
Ans2	tanA + Sec A - 1			1
	$\tan B + \sec A + 1$			
	$= \underline{\tan A + \sec A - (\sec^2 A - \tan^2 A)}$			
	Tan A – Sec A + 1			
	$= (\operatorname{Sec} A + \tan A) [1 - \operatorname{Sec} A + \tan A]$			
	$(\tan A - \sec A + 1)$			
	$=\frac{1}{\cos A}+\frac{\sin A}{\cos A}$			
	$=\frac{1+\sin A}{1+\sin A}$			
	$-\frac{1}{\cos A}$			
Ans3	$\frac{tanA}{+}$ $\frac{cotA}{-}$			1
	1-cotA 1-cotA			
	sinA cosA cosA sinA			
	$\frac{\cos A}{1} + \frac{\sin A}{1}$			
	$1 - \frac{1}{sinA}$ $1 - \frac{1}{COSA}$			
	sin A cos A			
	$\frac{sinA}{cosA} + \frac{cosA}{sinA}$			
	Sin A - cos A + $Cos A - Sin A$			
	sinA $cos Asin^2A cos^2A$			
	$=\frac{Sin n}{\cos A(\sin A - \cos A)} + \frac{\cos n}{\sin A(\cos A - \sin A)}$			
	$sin^2A$ $cos^2A$			
	$=\frac{300 \text{ A}}{\cos A(\sin A - \cos A)} - \frac{\cos A}{\sin A(\sin A - \cos A)}$			
	$Sin^3A - Cos^3A$			
	cosA sin A (SinA-cosA)			
	$(SinA-CosA)(Sin^2A+Sin^2A+SinA CosA)$			
	cosA sin A (SinA-cosA)			
	1+sin A cosA			
	$=\frac{1}{\cos A \sin A}$			
	= Sec A cosec A + 1			
	$Sin^2A$ $cos^2A$ $Sin A cosA$			
	$=\frac{Sin^2A}{cosAsinA} + \frac{cos^2A}{cosAsinA} + \frac{Sin A cosA}{SinA cosA}$			
	= tan A + cotA + 1			
Ans4	(1+ cotA – cosecA) (1+tan A + SecA)			1
71134	(1 + COLA - COSECA) (1 + COLA + SECA)			I
	1 + tan A + Sec A + cot A+ cot A tan A +	cot A sec A- cosec A – cosec A ta	in A – cosec A sec A	
	$1 + \frac{\sin A}{\cos A} + \frac{1}{\cos A} + \frac{\cos A}{\sin A} + 1 + \frac{\cos A}{\sin A} \times \frac{1}{\sin A} - \frac{1}{\sin A} = \frac{1}{\sin A} + $	$\frac{1}{1}$ X $\frac{SinA}{2}$ $\frac{1}{1}$ X $\frac{1}{1}$		
	cosA <sup>+</sup> cosA <sup>+</sup> sinA <sup>+</sup> sinA <sup>^</sup> sinA <sup>-</sup> s	inA cosA SinA cosA		
	$2 + \frac{\sin A}{\cos A} + \frac{\cos A}{\sin A} - \frac{1}{\sin A \cos A}$			
	cosA' SinA sinA cosA			
	$2 + \frac{\sin^2 A + \cos^2 A - 1}{\sin^2 A + \cos^2 A - 1}$			
	$2 + \frac{\sin^2 A + \cos^2 A - 1}{\sin A \cos A}$ $= 2 + \frac{1 - 1}{\sin A \cos A}$			
	$=2 + \frac{1-1}{\sin A \cos A}$			
	2 + 0			
	2+0			

= 2

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Ans5 $\lim_{n \to \infty} A + Cot^2 A + 2$ Sec <sup>2</sup> A + cosec <sup>2</sup> A = 1 + 2 Sec <sup>2</sup> A + cosec <sup>2</sup> A = 1 + 2 Sec <sup>2</sup> A + cosec <sup>2</sup> A = -1 + 2 Sec <sup>2</sup> A + cosec <sup>2</sup> A = -1 + 2 Sec <sup>2</sup> A + cosec <sup>2</sup> A = -1 + 2 Sec <sup>2</sup> A + cosec <sup>2</sup> A = -1 + 2 Sec <sup>2</sup> A + cosec <sup>2</sup> A = -1 + 2 Sec <sup>2</sup> A + cosec <sup>2</sup> A = -1 + 2 Sec <sup>2</sup> A + cosec <sup>2</sup> A = -1 + 2 Sec <sup>2</sup> A + cosec <sup>2</sup> A = -1 + 2 Sec <sup>2</sup> A + cosec <sup>2</sup> A = -1 + 2 Sec <sup>2</sup> A + cosec <sup>2</sup> A = -1 + 2 Sec <sup>2</sup> A + cosec <sup>2</sup> A = -1 + 2 Sec <sup>2</sup> A + cosec <sup>2</sup> A = -1 + 2 Sec <sup>2</sup> A + cosec <sup>2</sup> A = -1 + 2 Sec <sup>2</sup> A + cosec <sup>2</sup> A = -1 + 2 Sec <sup>2</sup> A + cosec <sup>2</sup> A = -1 + 2 Sec <sup>2</sup> A + cosec <sup>2</sup> A = -1 + 2 Sec <sup>2</sup> A + cosec <sup>2</sup> A = -1 + 2 Sec <sup>2</sup> A + cosec <sup>2</sup> A = -1 + 2 Sec <sup>2</sup> A + cosec <sup>2</sup> A = -1 + 2 Sec <sup>2</sup> A + cosec <sup>2</sup> A = -1 + 2 Sec <sup>2</sup> A + cosec <sup>2</sup> A = -1 + 2 Sec <sup>2</sup> A + cosec <sup>2</sup> A = -1 + 2 Sec <sup>2</sup> A + 2 + Sec <sup>2</sup> A + cosec <sup>2</sup> A + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 +			
$ \begin{array}{l} & \operatorname{Sec}^{2} A + 1 + \operatorname{cosc}^{2} A & 1 + 2 \\ & \operatorname{Sec}^{2} A + \operatorname{cosc}^{2} A & \\ & = \frac{1}{\operatorname{sin}^{2} A + \operatorname{cosc}^{2} A \\ & = \frac{1}{\operatorname{cosc}^{2} A \\ & = $	Ans5	$\tan^2 A + \cot^2 A + 2$	2
$\begin{array}{c} \operatorname{Sec}^{2} A + \operatorname{cosc}^{2} A \\ = \frac{1}{\operatorname{cost}^{2} A + \operatorname{cosc}^{2} A} \\ = \frac{1}{\operatorname{cost}^{2} A + \operatorname{cosc}^{2} A} \\ = \frac{1}{\operatorname{cosc}^{2} A \operatorname{cosc}^{2} A \operatorname{cosc}^{2} A} \\ = \frac{1}{\operatorname{cosc}^{2} A \operatorname{cosc}^{2} A \operatorname{cosc}^{2} A} \\ = \frac{1}{\operatorname{cosc}^{2} A \operatorname{cosc}^{2} A \operatorname{cosc}^{2} A \operatorname{cosc}^{2} A} \\ = \frac{1}{\operatorname{cosc}^{2} A \operatorname{cosc}^{2} A \operatorname{cosc}^{2} A \operatorname{cosc}^{2} A} \\ = \frac{1}{\operatorname{cosc}^{2} A \operatorname{cosc}^{2} \operatorname{cosc}^{2} A \operatorname{cosc}^{2} A \operatorname{cosc}^{2} A \operatorname{cosc}^{2} A \operatorname{cosc}^{2} \operatorname{cosc}^{2} A \operatorname{cosc}^{2}$			
$ \begin{array}{l} = \frac{1}{1 + 3} + \frac{1}{3 + 4} \\ = \frac{1}{3 + 4 + 2 + 3 + 4} \\ = \frac{1}{3 + 4 + 2 + 2 + 3 + 4} \\ = \frac{1}{3 + 4 + 2 + 2 + 3 + 4} \\ = \frac{1}{3 + 4 + 2 + 3 + 4} \\ = \frac{1}{3 + 4 + 2 + 3 + 4} \\ = \frac{1}{3 + 4 + 2 + 3 + 4 + 3 + 4} \\ = \frac{1}{3 + 2 + 4 + 3 + 4 + 3 + 4} \\ = \frac{1}{3 + 2 + 4 + 3 + 4 + 3 + 4 + 3 + 4 + 3 + 4 + 3 + 4 + 3 + 4 + 3 + 4 + 4$		$\operatorname{Sec}^2 A + \operatorname{cosec}^2 A$	
$ \begin{array}{l} = \frac{\sin^2 4 + \cos^2 A}{\sin^2 4 \cos^2 A} \\ = \frac{\sin^2 4 + \cos^2 A}{\sin^2 4 \cos^2 A} \\ = \cos (x) + \sin^2 A + \cos^2 A + 2\sin A + \sin^2 A + \cos^2 A + 2\sin A \cos^2 A + 2\sin^2 A + \cos^2 A + 2\sin A \cos^2 A + 2\sin^2 A + \cos^2 A + 2\cos^2 A + 2$			
$ \begin{array}{l} = \frac{1}{\sin^2 4 \cos^2 A} \\ = \frac{1}{\sin^2 4 \cos^2 A} \\ = \cos^2 A \frac{1}{5} \cos^2 A \\ = \cos^2 A \frac{1}{5} \cos^2 A \\ \frac{1}{\cos^2 4 \tan^2 A \cos^2 A} \\ \frac{1}{\cos^2 4 \tan^2 A \cos^2 A} \\ \frac{1}{\cos^2 4 \tan^2 A \cos^2 A \tan A} \\ = \frac{1}{2} \frac{1}{\cos^2 A \cos^2 A \tan A} \\ \frac{1}{\cos^2 A \cos^2 A \tan^2 A \sin^2 A \sin^2 A} \\ \frac{1}{\cos^2 A \cos^2 A \sin^2 A \cos^2 A + 2 \sin^2 A \sin^2$		$=\frac{1}{\cos^2 A}+\frac{1}{\sin^2 A}$	
$\begin{aligned} &= \frac{1}{\cos e^2 A \cos^2 A} \frac{1}{\sin^2 (\cos^2 A)} \\ &= \frac{1}{\cos e^2 A \sin^2 (\cos^2 A)} \\ &= \frac{1}{\cos e^2 A (\sin^2 A - \tan A)} \\ &= \frac{1}{\cos e^2 A (\sin^2 A - \tan A)} \\ &= \frac{1}{\cos e^2 A (\sin^2 A - \tan A)} \\ &= \frac{1}{\cos e^2 A (\sin^2 A - \tan A)} \\ &= \frac{1}{\cos e^2 A (\sin^2 A - \tan A)} \\ &= \frac{1}{\cos e^2 A (\sin^2 A - \tan A)} \\ &= \frac{1}{\cos e^2 A (\sin^2 A - \tan A)} \\ &= \frac{1}{\cos e^2 A (\sin^2 A - \tan A)} \\ &= \frac{1}{\cos e^2 A (\sin^2 A - \tan A)} \\ &= \frac{1}{\cos e^2 A (\sin^2 A - \tan A)} \\ &= \frac{1}{\cos e^2 A (\sin^2 A - \tan A)} \\ &= \frac{1}{\cos e^2 A (\sin^2 A - \tan A)} \\ &= \frac{1}{\cos e^2 A (\sin^2 A - \tan A)} \\ &= \frac{1}{\cos e^2 A (\sin^2 A - \tan A)} \\ &= \frac{1}{\cos e^2 A (\sin^2 A - \sin^2 B)} \\ &= \frac{1}{\cos e^2 A (\sin^2 A - \cos^2 B)} \\ &= \frac{1}{(\cos^2 A + \cos^2 A + \cos^2 A)^2} \\ &= \frac{1}{(\cos^2 A + \cos^2 A + \cos^2 A)^2} \\ &= \frac{1}{(\cos^2 A + \cos^2 A + 2 \sin^2 A - \cos^2 A)^2} \\ &= \frac{1}{(\cos^2 A + 1)^2} \\ &= \frac{1}{2 \cos^2 A + 1} \\ &= \frac{1}{\cos^2 A + 1} \\ &= \frac{1}{\cos^2 A + 1} \\ &= \frac{1}{(\cos^2 A + 1)^2} \\ &= \frac{1}{(\cos^2 A + 1)$		$\underline{sin^2A+cos^2A}$	
$\frac{\sin^2 q}{\cos^2 A \sec^2 A \sec^2 A}$ $\frac{\sin^2 q}{\cos^2 A \tan^2 + 1}$ $\frac{\sec^2 A \tan^2 + 2 \sec^2 A \tan A + 1}{\csc^2 A \tan^2 + 1}$ $\frac{\sec^2 A \tan^2 - 2 \sec^2 A \tan A + 1}{\csc^2 A \tan^2 + 1}$ $\frac{2 \sec^2 A \tan^2 - 2 \sec^2 A \tan A + 1}{\csc^2 A \tan^2 + 1}$ $\frac{2 \sec^2 A \tan^2 - 2 \sec^2 A \tan^2 + 1}{\csc^2 A \tan^2 + 1}$ $\frac{2 \sec^2 A + 1}{\csc^2 A + 1}$ $\frac{2 \sec^2 A + 1}{(\cos^2 A + 1)^2}$ $\frac{1}{(\cos^2 A + 2)^2}$ $\frac{1}{(\cos^2 A + 2)^2}$ $\frac{1}{(\sin^2 A + 2)^2}$		$= sin^2 A cos^2 A$	
$ \begin{array}{l} = \cos e^{c^{2}} A \operatorname{Sec}^{c^{2}} A \\ \frac{(\operatorname{Sec}^{c^{2}} - \operatorname{Cun}^{2})^{2+1}}{\operatorname{cosec}^{c}} A (\operatorname{Sec}^{d} - \operatorname{Cun}^{d}) \\ \frac{\operatorname{Sec}^{c^{2}} A + \operatorname{Sec}^{d} A \operatorname{Im}^{A} - 1}{\operatorname{cosec}^{c}} A (\operatorname{Sec}^{d} - \operatorname{Cun}^{d}) \\ \frac{\operatorname{Sec}^{c^{2}} A + \operatorname{Sec}^{c^{2}} A \operatorname{Im}^{A} - 1}{\operatorname{cosec}^{c}} A (\operatorname{Sec}^{d} - \operatorname{Cun}^{d}) \\ \frac{\operatorname{Sec}^{c^{2}} A + \operatorname{Sec}^{c^{2}} A \operatorname{Im}^{A} - 1}{\operatorname{cosec}^{c^{2}} A (\operatorname{Sec}^{d} - \operatorname{Cun}^{d}) \\ \frac{\operatorname{Sec}^{c^{2}} A + \operatorname{Sec}^{c^{2}} A \operatorname{Im}^{A} - 1}{\operatorname{cosec}^{c^{2}} A (\operatorname{Sec}^{d} - \operatorname{Cun}^{d}) \\ \frac{\operatorname{Sec}^{c^{2}} A + \operatorname{Sec}^{c^{2}} A \operatorname{Im}^{A} + 1}{\operatorname{Sin}^{A} + \operatorname{Sin}^{A^{2}} B \\ \frac{\operatorname{Sin}^{A^{2}} A \operatorname{Sin}^{B^{2}} B (\operatorname{cose}^{A^{2}} - \operatorname{Cose}^{A^{2}} B \\ \frac{\operatorname{Sin}^{A^{2}} A \operatorname{Sin}^{B^{2}} A (\operatorname{cosec}^{A^{2}} - \operatorname{Cose}^{A^{2}} B \\ \frac{\operatorname{Sin}^{A^{2}} A \operatorname{Sin}^{B^{2}} A (\operatorname{cosec}^{A^{2}} + 2 \operatorname{Sec}^{A^{2}} A \operatorname{cosec}^{A^{2}} A \\ \frac{\operatorname{Sin}^{A^{2}} A \operatorname{Sin}^{B^{2}} A (\operatorname{cosec}^{A^{2}} + 1 + \operatorname{Sin}^{A^{2}} A \operatorname{cosec}^{A^{2}} A \\ \frac{\operatorname{Sin}^{A^{2}} A \operatorname{cosec}^{A^{2}} A + 1 \operatorname{cosec}^{A^{2}} A + 1 \\ \frac{\operatorname{Sin}^{A^{2}} A \operatorname{cosec}^{A^{2}} A + 1 \\ \frac{\operatorname{cosec}^{A^{2}} A + 1 \\ \frac{\operatorname{cosec}^{A^{2}$		$=\frac{1}{c_{12}^{2} c_{12}^{2} c_{22}^{2} c_{22}^{2} c_{22}^{2}}$	
Anso $\frac{(sec 4 - smat)^{2} + 1}{sec^{2} A - 2 sec A tan A + 1}}$ $\frac{(sec 4 - smat)^{2}}{sec^{2} A - 2 sec A tan A + 1}}$ $\frac{2 sec^{2} A - 2 sec A tan A + 1}{sec^{2} A - 2 sec A tan A + 1}}$ $\frac{2 sec^{2} A - 2 sec A tan A + 1}{sec^{2} A - 2 sec A tan A + 1}}$ $\frac{2 sec^{2} A - 2 sec A tan A + 1}{sec^{2} A - 2 sec A tan A + 1}}$ $\frac{2 sec^{2} A - 2 sec A tan A + 1}{sec^{2} A - 2 sec A tan A + 1}}$ $\frac{2 sec^{2} A - 2 sec A tan A + 1}{sec^{2} A - 2 sec^{2} (sec^{2} A - 1 an A)}$ $\frac{2 sec^{2} A - 2 sec A tan A + 1}{sec^{2} A - 2 sec^{2} (sec^{2} A - 1 an A)}$ $\frac{2 sec^{2} A - 2 sec^{2} (sec^{2} A - 1 an A) + 1}{(cos^{2} A - cos^{2})^{2} (cos^{2} A - 2 sec^{2} A - 2 sec^{2} A - 2 sec^{2} A - 2 sec^{2} A + 1 sec^{2$		$\sin^2 A \cos^2 A$	
$\frac{\cscc}{(scd-tarrad)} = \frac{scd-tarrad}{scd-tarrad}$ $= \frac{scd-tarrad}{cosec A (scd-tarrad)}$ $= \frac{scd-tarrad}{tarrad}$ $= \frac{scd-tarrad}{tarrad}$ $= \frac{scd-tarrad}{tarrad}$ $= \frac{scd-tarrad}{tarrad}$ $= scd-ta$	Amal		
$\begin{array}{r llllllllllllllllllllllllllllllllllll$	Ans6		
$\frac{2 \operatorname{cose} A \operatorname{(see A - tan A)}}{2 \operatorname{cose} A \operatorname{(see A - tan A)}}$ $\frac{2 \operatorname{cose} A \operatorname{(see A - tan A)}}{2 \operatorname{cose} A \operatorname{(see A - tan A)}}$ $\frac{2 \operatorname{cose} A \operatorname{(see A - tan A)}}{2 \operatorname{cose} A \operatorname{(see A - tan A)}}$ $\frac{2 \operatorname{cose} A \operatorname{(see A - tan A)}}{2 \operatorname{cose} A \operatorname{cose} B}$ $\frac{2 \operatorname{cose} A \operatorname{(see A - tan A)}}{2 \operatorname{cose} A \operatorname{cose} B}$ $\frac{2 \operatorname{cose} A \operatorname{cose} A \operatorname{cose} A \operatorname{cose} B \operatorname{cose} A \operatorname{cose} A \operatorname{cose} A \operatorname{cose} B \operatorname{cose} A \operatorname{cose} $			
$ \begin{array}{l} & \frac{2 \sec^2 A - 2 \sec 4 \tan A}{2 \sec 4 (\sec A - \tan A)} \\ & \frac{2 \sec 4 (\sec A - \tan A)}{2 \sec 4 (\sec A - \tan A)} \\ & \frac{2 \sec 4 (\sec A - \tan A)}{2 \sec 4 (\sec A - \tan A)} \\ & \frac{2 \tan A}{2 \tan A} \\ & $			
$\frac{1}{2} \frac{\cos c c}{\cos c c} A (\sec A - \tan A)}{\cos c c A} \frac{1}{\cos c c} A (\sec A - \tan A)}$ $\frac{1}{2} \frac{\cos c A}{\cos c c} (\sec A - \tan A)}{\cos c c A} \frac{1}{\cos c A} \frac{\cos A - \cos B}{\cos c A} \frac{1}{\cos c A} \frac{\cos A - \cos B}{\cos c A} \frac{1}{\cos c A} \frac{\cos A - \cos B}{\cos c A} \frac{1}{\cos c A} \frac{1}{\sin c A} \frac{1}{\sin c A} \frac{1}{\sin c A} \frac{1}{\cos c A} \frac$			
$= \frac{2 \sec A (\sec A - \tan A)}{2 \exp A (\sec A - \tan A)}$ $= 2 \tan A$ Ans? $\frac{587^{2} - 5878 + \frac{\cos A - \cos B}{\sin A + \sin B}}{\frac{\cos A - \cos B}{\cos A - \cos B} - \frac{1}{(\cos A + \cos B) (\sin A + \sin B)}}$ $= 0$ Ans8 $(\cos A + \sec A)^{2} + (\sin A + \csc A)^{2}$ $(\cos A + \sec A)^{2} + (\sin A + \csc A)^{2}$ $(\cos A + \sec A)^{2} + 2 \sec A \cos A + \sin^{2} A + \csc^{2} A + 2 \sin A \csc A$ $1 + 2 + 2 + \sec^{2} A + \csc^{2} A + \csc^{2} A + 2 \sin^{2} A + 2 \sin$			
$\frac{1}{2} \frac{\cos \alpha c}{\cos \alpha} \frac{(\sin 4 - \sin A)}{(\cos 4 - \cos B)} \frac{1}{\sin 4 + \sin B} \frac{(\cos 4 - \cos B)}{\sin 4 + \sin B} \frac{(\cos 4 - \cos B)}{\sin 4 + \sin B} \frac{(\cos 4 - \cos B)}{(\cos 4 - \cos B)} \frac{(\cos 4 - \cos B)}{(\cos 4 - \cos B)} \frac{(\cos 4 - \cos B)}{(\cos 4 - \cos B)} \frac{(\cos 4 - \cos B)}{(\cos 4 - \cos B)} \frac{(\cos 4 - \cos B)}{(\cos 4 - \cos B)} \frac{(\cos 4 - \cos B)}{(\cos 4 - \cos B)} \frac{(\cos 4 - \cos B)}{(\cos 4 - \cos B)} \frac{(\cos 4 - \cos B)}{(\cos 4 - \cos B)} \frac{(\cos 4 - \cos B)}{(\cos 4 - \cos B)} \frac{(\cos 4 - \cos B)}{(\cos 4 - \cos B)} \frac{(\cos 4 - \cos B)}{(\cos 4 - \cos B)} \frac{(\cos 4 - \cos B)}{(\cos 4 - \cos B)} \frac{(\cos 4 - \cos B)}{(\cos 4 - \cos B)} \frac{(\cos 4 - \cos B)}{(\cos 4 - 1)} \frac{(\cos 4 - \cos B)}{(\cos 4 - 1)} \frac{(\cos 4 - 1)}{(\cos 4 - 1)} \frac{(\cos 4 - 1)}{(\cos 4 - 1)} \frac{(\cos 4 - 1)}{(\cos 4 - 1)} \frac{(\cos 2 - 4)}{(\cos 4 - 1)} \frac{(\cos 4 - 1)}{(\cos 4 - 1)$			
$ \begin{array}{c c c c c c c } \hline = 2 \tan A &  c c c c c c c c c c c c c c c c c c $			
$\begin{array}{l} \operatorname{Ans7} & \frac{\operatorname{SinA-Sin B}_{1}}{\operatorname{CosA+cosB}} & \frac{\operatorname{cosA-cosB}_{1}}{\operatorname{cosA+cosB}(\operatorname{Sin A+Sin B})} \\ & \frac{\operatorname{SinA-sin B+cos}^{2} + \operatorname{cos}^{2} - \operatorname$			
$\frac{\sin^{2} 4 - \sin^{2} \theta + \cos^{2} 4 - \cos^{2} \theta}{(\cos A + \cos \theta) (\sin A + \sin \theta)}}$ $= 0$ Ans8 $\frac{(\cos A + \sec^{2} A + 2 \sec A \cos A + 3 \sin^{2} A + \csc^{2} A + 2 \sin A \csc A)^{2}}{(\cos^{2} A + 5 ec^{2} A + 2 \sec A \cos A + 5 \ln^{2} A + \csc^{2} A + 2 \sin A \csc A A + 1 + 2 + 3 ec^{2} A + \cos^{2} A + 1 + \cot^{2} A + 1 + 7 + \tan^{2} A + \cot^{2} A + 1 + \cot^{2} A + 1 + 7 + \tan^{2} A + \cot^{2} A + 1 + \frac{\cos e^{2} A + 1 + \cos e^{2} A + \cos e^{2} A + 1 + 2 \cos e^{2} A + 2 \sin A \csc^{2} A + 2 \sin A \csc^{2} A + 2 \sin A \cot^{2} A + \cos^{2} A + 1 + 2 \cos e^{2} A + 2 \cos e^{2} A + 2 \cos^{2} A + 1 + 2 \cos e^{2} A + 2 \cos A + 1 + 2 \cos e^{2} A + 2 \cos A + 1 + 2 \cos e^{2} A + 2 \cos^{2} A + 1 + 2 \cos e^{2} A + 2 \cos^{2} A + 1 + 2 \cos e^{2} A + 2 \cos^{2} A + 1 + 2 \cos^{2} A + 2 \sin^{2} A + \frac{2 \sin^{2} A + 2 \sin^{2} A + 3 $	Apc7		
$\frac{\sin^{2} 4 - \sin^{2} \theta + \cos^{2} 4 - \cos^{2} \theta}{(\cos A + \cos \theta) (\sin A + \sin \theta)}}$ $= 0$ Ans8 $\frac{(\cos A + \sec^{2} A + 2 \sec A \cos A + 3 \sin^{2} A + \csc^{2} A + 2 \sin A \csc A)^{2}}{(\cos^{2} A + 5 ec^{2} A + 2 \sec A \cos A + 5 \ln^{2} A + \csc^{2} A + 2 \sin A \csc A A + 1 + 2 + 3 ec^{2} A + \cos^{2} A + 1 + \cot^{2} A + 1 + 7 + \tan^{2} A + \cot^{2} A + 1 + \cot^{2} A + 1 + 7 + \tan^{2} A + \cot^{2} A + 1 + \frac{\cos e^{2} A + 1 + \cos e^{2} A + \cos e^{2} A + 1 + 2 \cos e^{2} A + 2 \sin A \csc^{2} A + 2 \sin A \csc^{2} A + 2 \sin A \cot^{2} A + \cos^{2} A + 1 + 2 \cos e^{2} A + 2 \cos e^{2} A + 2 \cos^{2} A + 1 + 2 \cos e^{2} A + 2 \cos A + 1 + 2 \cos e^{2} A + 2 \cos A + 1 + 2 \cos e^{2} A + 2 \cos^{2} A + 1 + 2 \cos e^{2} A + 2 \cos^{2} A + 1 + 2 \cos e^{2} A + 2 \cos^{2} A + 1 + 2 \cos^{2} A + 2 \sin^{2} A + \frac{2 \sin^{2} A + 2 \sin^{2} A + 3 $	AIIS7	$\frac{5601}{\cos 4 \pm \cos B} + \frac{5601}{\sin 4 \pm \sin B}$	
$\frac{1-1}{\left  \frac{1-1}{\cos^2 A + \cos B} \right ^2 \left  (\sin A + \sin B) \right ^2}{= 0}$ Ans8 $\frac{(\cos A + \sec A)^2 + (\sin A + \csc A)^2}{\cos^2 A + \sec^2 A + 2\sec A \cos A + \sin^2 A + \csc C^2 A + 2\sin A \csc A + 1 + 2 + 2 + \sec^2 A + 2\sec C A + 2 \sin A \csc A + 1 + 2 + 2 + \sec^2 A + 2 \sec C A + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 +$		$Sin^2A - Sin^2B + Cos^2A - Cos^2B$	
$\frac{1-1}{\left  \frac{1-1}{\cos^2 A + \cos B} \right ^2 \left  (\sin A + \sin B) \right ^2}{= 0}$ Ans8 $\frac{(\cos A + \sec A)^2 + (\sin A + \csc A)^2}{\cos^2 A + \sec^2 A + 2\sec A \cos A + \sin^2 A + \csc C^2 A + 2\sin A \csc A + 1 + 2 + 2 + \sec^2 A + 2\sec C A + 2 \sin A \csc A + 1 + 2 + 2 + \sec^2 A + 2 \sec C A + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 +$		(CosA+cosB) $(Sin A+SinB)$	
$= 0$ Ans8 $\left( CosA + Sec A \right)^{2} + (SinA + cosec A)^{2} \\ Cos^{2} A + Sec^{2} A + 2SecA cos A + Sin^{2}A + cosec^{2}A + 2sinA cosec A \\ 1 + 2 + 2 + Sec^{2} A + cosec2A \\ 5 + tan^{2}A + 1 + cot^{2}A \\ Ans9 \frac{cosecA + 1}{cosecA + 1} \frac{cosecA + 1}{cotA} \\ \frac{cotA + cosecA + 1}{cosecA + 1} \\ \frac{cotA + cosecA + 1}{cotA} \\ \frac{cotA + cosecA + 1}{cosecA + 1} \\ \frac{cotA + cosecA + 1}{cotA} \\ \frac{cotA + cosecA + 1}{coseCA + 1} \\ \frac{cotA + cosecA + 1}{cosA} \\ \frac{cotA + cosecA + 1}{coseCA + 1} \\ \frac{cotA + cosecA + 1}{cosA} \\ \frac{cosecA + 1}{cosA} \\ \frac{cosec}{A + 2 sinA} \\ \frac{cosec}{A + 1} \\ \frac{cosec}{A + 2 sinA} \\ \frac{cosec}{A + $		1-1	
Ans8 $\frac{(\cos 4 + \sec A)^2 + (\sin 4 + \csc A)^2}{(\cos^2 A + \sec^2 A + 2\sec A \cos A + \sin^2 A + \csc^2 A + 2\sin A \csc A)}{1 + 2 + 2 + \sec^2 A + \cos^2 A + 2\sin A \csc A)}$ $\frac{1 + 2 + 2 + \sec^2 A + \csc^2 A + 1}{2 + \tan^2 A + 1 + \cot^2 A + 1}$ Ans9 $\frac{\cot A}{\csc A + 1} + \frac{\cot A}{\cot A}$ $\frac{\cot A}{\csc A + 1 + 2 - \csc^2 A}$ $\frac{1}{2 - \csc^2 A + 2 \sin A - \csc^2 A}{\cot A (\csc A + 1)}$ $\frac{2 - \csc^2 A + 2 \cos^2 A + 1}{2 - \cot A}$ $\frac{1}{2 - \csc^2 A + 2 \sin A - \csc^2 A + 2 \cos A}$ Ans10 $\frac{(\sin A + \sec A)^2 + (\cos A + \cos^2 A + 2 \cos A)}{(\sin A + \sec^2 A + 2 \sin A - \sin A \cos A)}$ $\frac{1}{1 + \frac{1}{\cos^2 A} + \frac{1}{\sin^2 A} - \frac{1}{\sin^2 A} + \frac{2 \sin^2 A + 2 \cos^2 A}{\sin A \cos A}}$ $\frac{1}{1 + \frac{1}{\cos^2 A + 2} + \frac{2 \sin^2 A + 2 \cos^2 A}{\sin^2 A \cos^2 A} + \frac{2 \sin^2 A + 2 \cos^2 A}{\sin^2 A \cos^2 A} + \frac{2 \sin^2 A + 2 \cos^2 A}{\sin^2 A \cos^2 A} + \frac{2 \sin^2 A + 2 \cos^2 A}{\sin^2 A \cos^2 A} + \frac{2 \sin^2 A + 2 \cos^2 A}{\sin^2 A \cos^2 A} + \frac{2 \sin^2 A + 2 \cos^2 A}{\sin^2 A \cos^2 A} + \frac{2 \sin^2 A + 2 \cos^2 A}{\sin^2 A \cos^2 A} + \frac{2 \sin^2 A + 2 \cos^2 A}{\sin^2 A \cos^2 A} + \frac{2 \sin^2 A + 2 \cos^2 A}{\sin^2 A \cos^2 A} + \frac{1 + \sec^2 A + 2 \sec^2 A}{\sin^2 A \cos^2 A} + \frac{1 + \sec^2 A + 2 \sec^2 A}{\sin^2 A \cos^2 A} + \frac{1 + \sec^2 A + 2 \sec^2 A}{\sin^2 A \cos^2 A} + \frac{2 \sin^2 A + 2 \cos^2 A}{\sin^2 A \cos^2 A} + \frac{1 + \sec^2 A + 2 \sec^2 A}{\sin^2 A \cos^2 A} + \frac{1 + 2 \sec^2 A + 2 \sec^2 A}{\sin^2 A \cos^2 A} + \frac{1 + 2 \sec^2 A + 2 \sec^2 A}{\sin^2 A \cos^2 A} + \frac{1 + 2 \sec^2 A + 2 \sec^2 A}{\sin^2 A \cos^2 A} + \frac{1 + 2 \sec^2 A + 2 \sec^2 A}{\sin^2 A \cos^2 A} + \frac{1 + 2 \sec^2 A + 2 \sec^2 A}{\sin^2 A \cos^2 A} + \frac{1 + 2 \sec^2 A + 2 \sec^2 A}{\sin^2 A \cos^2 A} + \frac{1 + 2 \sec^2 A + 2 \sec^2 A}{\sin^2 A \cos^2 A} + \frac{1 + 2 \sec^2 A + 2 \sec^2 A}{\sin^2 A \cos^2 A} + \frac{1 + 2 \sec^2 A + 2 \sec^2 A}{\sin^2 A \cos^2 A} + \frac{1 + 2 \sec^2 A + 2 \sec^2 A}{\sin^2 A \cos^2 A} + 1 + 2 \sec^2 A + 2$		(cosA+cosB)(Sin A+SinB)	
$\frac{\cos^{2} A + \sec^{2} A + 2\sec A \cos A + \sin^{2} A + \csc^{2} A + 2\sin A \csc A \\ 1 + 2 + 2 + 5ec^{2} A + \cosec^{2} A + 1 \\ 1 + 2 + 2 + 5ec^{2} A + \cot^{2} A + 1 \\ 7 + \tan^{2} A + \cot^{2} A \\ \frac{1}{7 + \tan^{2} A + \cot^{2} A} \\ \frac{1}{7 + \tan^{2} A + \cot^{2} A} \\ \frac{1}{2 \cos ec^{2} A + 2 \csc A + 1} \\ \frac{1}{2 \csc A + 2 \tan A + \csc^{2} A + \cos^{2} A + \cos^{2} A + 2 \cos A \csc A \\ 1 + \sec^{2} A + 2 \tan A + \csc^{2} A + 2 \cot A \\ 1 + \frac{1}{\cos^{2} A + 2} \\ \frac{1}{\sin^{2} A \cos^{2} A + \frac{2\sin^{2} A + 2\cos^{2} A \\ \frac{1}{\sin^{2} A \cos^{2} A + \frac{2\sin^{2} A + 2\cos^{2} A \\ \frac{1}{\sin^{2} A \cos^{2} A + \frac{2\sin^{2} A \cos^{2} A \\ \frac{1}{\sin^{2} A \cos^{2} A + \frac{2\sin^{2} A \cos^{2} A \\ \frac{1}{\sin^{2} A \cos^{2} A + \frac{2\sin^{2} A \cos^{2} A \\ \frac{1}{1 - \cos^{2} A + \frac{2\sin^{2} A \cos^{2} A \\ \frac{1}{1 - \cos^{2} A + \frac{\sin^{2} A \cos^{2} A \\ \frac{1}{1 - \cos^{2} A + \frac{\sin^{2} A \cos^{2} A \\ \frac{1}{1 - \cos^{2} A + \frac{\sin^{2} A \cos^{2} A \\ \frac{1}{1 - \cos^{2} A + \frac{\sin^{2} A \cos^{2} A \\ \frac{1}{1 - \cos^{2} A + \frac{\sin^{2} A \sin^{2} A \\ \frac{1}{1 - \cos^{2} A + \frac{\sin^{2} A \cos^{2} A \\ \frac{1}{1 - \cos^{2} A + \frac{\sin^{2} A \cos^{2} A \\ \frac{1}{1 - \cos^{2} A + \frac{\sin^{2} A \cos^{2} A \\ $		= 0	
$\frac{\cos^{2} A + \sec^{2} A + 2\sec A \cos A + \sin^{2} A + \csc^{2} A + 2\sin A \csc A \\ 1 + 2 + 2 + 5ec^{2} A + \cosec^{2} A + 1 \\ 1 + 2 + 2 + 5ec^{2} A + \cot^{2} A + 1 \\ 7 + \tan^{2} A + \cot^{2} A \\ \frac{1}{7 + \tan^{2} A + \cot^{2} A} \\ \frac{1}{7 + \tan^{2} A + \cot^{2} A} \\ \frac{1}{2 \cos ec^{2} A + 2 \csc A + 1} \\ \frac{1}{2 \csc A + 2 \tan A + \csc^{2} A + \cos^{2} A + \cos^{2} A + 2 \cos A \csc A \\ 1 + \sec^{2} A + 2 \tan A + \csc^{2} A + 2 \cot A \\ 1 + \frac{1}{\cos^{2} A + 2} \\ \frac{1}{\sin^{2} A \cos^{2} A + \frac{2\sin^{2} A + 2\cos^{2} A \\ \frac{1}{\sin^{2} A \cos^{2} A + \frac{2\sin^{2} A + 2\cos^{2} A \\ \frac{1}{\sin^{2} A \cos^{2} A + \frac{2\sin^{2} A \cos^{2} A \\ \frac{1}{\sin^{2} A \cos^{2} A + \frac{2\sin^{2} A \cos^{2} A \\ \frac{1}{\sin^{2} A \cos^{2} A + \frac{2\sin^{2} A \cos^{2} A \\ \frac{1}{1 - \cos^{2} A + \frac{2\sin^{2} A \cos^{2} A \\ \frac{1}{1 - \cos^{2} A + \frac{\sin^{2} A \cos^{2} A \\ \frac{1}{1 - \cos^{2} A + \frac{\sin^{2} A \cos^{2} A \\ \frac{1}{1 - \cos^{2} A + \frac{\sin^{2} A \cos^{2} A \\ \frac{1}{1 - \cos^{2} A + \frac{\sin^{2} A \cos^{2} A \\ \frac{1}{1 - \cos^{2} A + \frac{\sin^{2} A \sin^{2} A \\ \frac{1}{1 - \cos^{2} A + \frac{\sin^{2} A \cos^{2} A \\ \frac{1}{1 - \cos^{2} A + \frac{\sin^{2} A \cos^{2} A \\ \frac{1}{1 - \cos^{2} A + \frac{\sin^{2} A \cos^{2} A \\ $			
$\frac{\cos^{2} A + \sec^{2} A + 2\sec A \cos A + \sin^{2} A + \csc^{2} A + 2\sin A \csc A \\ 1 + 2 + 2 + 5ec^{2} A + \cosec^{2} A + 1 \\ 1 + 2 + 2 + 5ec^{2} A + \cot^{2} A + 1 \\ 7 + \tan^{2} A + \cot^{2} A \\ \frac{1}{7 + \tan^{2} A + \cot^{2} A} \\ \frac{1}{7 + \tan^{2} A + \cot^{2} A} \\ \frac{1}{2 \cos ec^{2} A + 2 \csc A + 1} \\ \frac{1}{2 \csc A + 2 \tan A + \csc^{2} A + \cos^{2} A + \cos^{2} A + 2 \cos A \csc A \\ 1 + \sec^{2} A + 2 \tan A + \csc^{2} A + 2 \cot A \\ 1 + \frac{1}{\cos^{2} A + 2} \\ \frac{1}{\sin^{2} A \cos^{2} A + \frac{2\sin^{2} A + 2\cos^{2} A \\ \frac{1}{\sin^{2} A \cos^{2} A + \frac{2\sin^{2} A + 2\cos^{2} A \\ \frac{1}{\sin^{2} A \cos^{2} A + \frac{2\sin^{2} A \cos^{2} A \\ \frac{1}{\sin^{2} A \cos^{2} A + \frac{2\sin^{2} A \cos^{2} A \\ \frac{1}{\sin^{2} A \cos^{2} A + \frac{2\sin^{2} A \cos^{2} A \\ \frac{1}{1 - \cos^{2} A + \frac{2\sin^{2} A \cos^{2} A \\ \frac{1}{1 - \cos^{2} A + \frac{\sin^{2} A \cos^{2} A \\ \frac{1}{1 - \cos^{2} A + \frac{\sin^{2} A \cos^{2} A \\ \frac{1}{1 - \cos^{2} A + \frac{\sin^{2} A \cos^{2} A \\ \frac{1}{1 - \cos^{2} A + \frac{\sin^{2} A \cos^{2} A \\ \frac{1}{1 - \cos^{2} A + \frac{\sin^{2} A \sin^{2} A \\ \frac{1}{1 - \cos^{2} A + \frac{\sin^{2} A \cos^{2} A \\ \frac{1}{1 - \cos^{2} A + \frac{\sin^{2} A \cos^{2} A \\ \frac{1}{1 - \cos^{2} A + \frac{\sin^{2} A \cos^{2} A \\ $	Ans8	$(CosA + Sec A)^2 + (SinA + cosec A)^2$	
$\frac{1+2+2+\sec^{2}A + \csc2A}{5+\tan^{2}A + 1 + \cot^{2}A}$ Ans9 $\frac{\cot A}{\csc ex + 1} + \frac{\csc A + 1}{\cot A}$ $\frac{\cot A}{\csc ex + 1 + 2 \csc A}$ $\frac{\cot A}{\csc ex + 1 + 2 \csc A}$ $\frac{\cot A(\csc A + 1)}{\cot A(\csc A + 1)}$ $\frac{2 \csc A}{\cot A(\csc A + 1)}$ $\frac{2 \sec A}{\cot A(\csc A + 1)}$ $\frac{1 + \frac{1}{2} + \frac{1}{2} \frac{2 \sin A}{\cot A} + \frac{2 \sin A}{\cot A} + 2 \cot A$ $\frac{1 + \frac{1}{2} + \frac{1}{2} \frac{2 \sin A}{\cot A} + 2$	71130	$(\cos A + 5 \cos^2 A + 2 \cos A + \sin^2 A + \cos \cos^2 A + 2 \sin A \cos \cos A)$	
$\frac{5 + \tan^{2} A + 1 + \cot^{2} A + 1}{7 + \tan^{2} A + \cot^{2} A}$ Ans9 $\frac{\cot A}{\cos e A + 1} + \frac{\cos e A + 1}{\cot A}$ $\frac{\cot A (\cos e c A + 1)}{\cot A (\cos e c A + 1)}$ $\frac{2 \cos e^{2} A + 2 \cos e A}{\cot A (\cos e c A + 1)}$ $\frac{2 \cos e^{2} A (\cos e c A + 1)}{\cot A (\cos e c A + 1)}$ $\frac{2 \cos e^{2} A (\cos e c A + 1)}{\cot A (\cos e c A + 1)}$ $\frac{2 \cos e^{2} A (\cos e c A + 1)}{\cot A (\cos e c A + 1)}$ $\frac{2 \cos e^{2} A (\cos e c A + 1)}{\cot A (\cos e c A + 1)}$ $\frac{2 \cos A (\cos e c A + 1)}{\cot A (\cos e c A + 1)}$ $\frac{2 \cos A (\cos e c A + 1)}{\cot A (\cos e c A + 1)}$ $\frac{2 \cos A (\cos e c A + 1)}{\cot A (\cos e c A + 1)}$ $\frac{2 \cos A (\cos e c A + 1)}{\cot A (\cos e c A + 1)}$ $\frac{2 \cos A (\cos e c A + 1)}{\cot A (\cos e c A + 1)}$ $\frac{2 \cos A (\cos e c A + 1)}{\cot A (\cos e c A + 1)}$ $\frac{2 \cos A (\cos e c A + 1)}{\cot A (\cos e c A + 1)}$ $\frac{2 \sin A + \sec A^{2} + 2 \sin A + \cos e^{2} A + 2 \cos A + 2 \cos A \cos e C A + 1 + \sec^{2} A + 2 \sin A + \cos e^{2} A + 2 \cot A$ $1 + \sec^{2} A + 2 \tan^{2} A + \cos^{2} A + 2 \cot^{2} A + 2 \cot$			
$\frac{7 + \tan^{2}A + \cot^{2}A}{\operatorname{cot}A} + \frac{\cos e \operatorname{cot}A}{\cot A} + \frac{\cos e \operatorname{cot}A}{\cot A} + \frac{\cot A}{\cot A} + \frac{\cot A}$			
$\begin{array}{l} \operatorname{Ans9} & \frac{\cot A}{\cos e C A + 1} + \frac{\csc A + 1}{\cot A} \\ \frac{\cot^2 A + \csc 2 + 1 + 2 \cos e C A}{\cot A (\cos e C A + 1)} \\ \frac{2 \cos e^2 A + 2 \cos e C A}{\cot A (\cos e C A + 1)} \\ \frac{2 \cos e^2 A + 2 \cos e A}{\cot A (\cos e C A + 1)} \\ \frac{2 \cos e^2 A + 2 \cos e A}{\cot A (\cos e C A + 1)} \\ \frac{2 \operatorname{Sin}^2 A + \operatorname{Sec} (A)^2 + (\operatorname{Cos} A + \operatorname{Cos} CA^2 + \operatorname{Cos} A^2 + \operatorname{Cos} A^2 + 2 \cos A \cosh A + \cos A^2)^2 \\ \operatorname{Sin}^2 A + \operatorname{Sec} (A + 2 \sin A + \csc A^2 + 2 \cos A + \cos A^2 + 2 \cot A - 1 + \sec^2 A + 2 \sin A + \csc A^2 + 2 \cot A \\ 1 + \sec^2 A + \frac{1}{\sin^2 A} + \frac{2 \sin A}{\cos A} + \frac{2 \sin^2 A + 2 \cos^2 A}{\sin A} \\ 1 + \frac{\sin^2 A \cos^2 A}{\sin^2 A \cos^2 A} + \frac{2 \sin^2 A 2 \cos^2 A}{\sin A \cos A} \\ 1 + \frac{1}{\sin^2 A \cos^2 A} + \frac{2 \sin A}{\sin A \cos A} \\ 1 + \frac{1}{\sin^2 A \cos^2 A} + \frac{2 \sin A}{\sin A \cos A} \\ 1 + \operatorname{Sec} A \cos C A^2 + 2 \sec A \csc A + \cos A \\ (1 + \sec A \csc A)^2 \\ 1 + \operatorname{Sec} A \cos C A^2 + 2 \sec A \csc A \\ (1 + \sec A \csc A)^2 \\ 1 + \frac{1}{\cos A} + \frac{\sin A}{1 + \cos A} \\ \frac{\sin A \cos A}{1 - \cos A} + \frac{\sin A}{1 + \cos A} \\ \frac{\sin A \cos A(1 + \cos A)}{(1 - \cos A)(1 + \cos A) \cos A} \\ \frac{\sin A \cos A(1 + \cos A) - \sin A \cos A}{(1 - \cos A)(1 + \cos A) \cos A} \\ \frac{\sin A \cos A(1 + \cos^2 A)}{\sin^2 A \cos^2 A} \\ \frac{\sin A \cos A(1 + \cos^2 A)}{\sin^2 A \cos^2 A} \\ \frac{\sin A \cos A(1 + \cos^2 A)}{\sin^2 A \cos^2 A} \\ \frac{\sin A \cos A(1 + \cos^2 A)}{\sin^2 A \cos^2 A} \\ \frac{\sin A \cos A(1 + \cos^2 A)}{\sin^2 A \cos^2 A} \\ \frac{\sin A \cos A(1 + \cos^2 A)}{\sin^2 A \cos^2 A} \\ \frac{\sin A \cos A(1 + \cos^2 A)}{\sin^2 A \cos^2 A} \\ \frac{\sin A \cos A(1 + \cos^2 A)}{\sin^2 A \cos^2 A} \\ \frac{\sin A \cos A(1 + \cos^2 A)}{\sin^2 A \cos^2 A} \\ \frac{\sin A \cos A(1 + \cos^2 A)}{\sin^2 A \cos^2 A} \\ \frac{\sin A \cos A(1 + \cos^2 A)}{\sin^2 A \cos^2 A} \\ \frac{\sin A \cos A(1 + \cos^2 A)}{\sin^2 A \cos^2 A} \\ \frac{\sin^2 A \cos^2 A}{\sin^2 A \cos^2 A \cos^2 A \cos^2 A \cos^2 A + \cos^2 A \cos^2 A \cos^2 A \\ \frac{\sin^2 A \cos^2 A}{\sin^2 A \cos^2 A \\ \frac{\sin^2 A \cos^2 A}{\sin^2 A \cos^2 A \cos^$		$5 + \tan^2 A + 1 + \cot^2 A + 1$	
$\begin{array}{l} \operatorname{Ans9} & \frac{\cot A}{\cos e C A + 1} + \frac{\csc A + 1}{\cot A} \\ \frac{\cot^2 A + \csc 2 + 1 + 2 \cos e C A}{\cot A (\cos e C A + 1)} \\ \frac{2 \cos e^2 A + 2 \cos e C A}{\cot A (\cos e C A + 1)} \\ \frac{2 \cos e^2 A + 2 \cos e A}{\cot A (\cos e C A + 1)} \\ \frac{2 \cos e^2 A + 2 \cos e A}{\cot A (\cos e C A + 1)} \\ \frac{2 \operatorname{Sin}^2 A + \operatorname{Sec} (A)^2 + (\operatorname{Cos} A + \operatorname{Cos} CA^2 + \operatorname{Cos} A^2 + \operatorname{Cos} A^2 + 2 \cos A \cosh A + \cos A^2)^2 \\ \operatorname{Sin}^2 A + \operatorname{Sec} (A + 2 \sin A + \csc A^2 + 2 \cos A + \cos A^2 + 2 \cot A - 1 + \sec^2 A + 2 \sin A + \csc A^2 + 2 \cot A \\ 1 + \sec^2 A + \frac{1}{\sin^2 A} + \frac{2 \sin A}{\cos A} + \frac{2 \sin^2 A + 2 \cos^2 A}{\sin A} \\ 1 + \frac{\sin^2 A \cos^2 A}{\sin^2 A \cos^2 A} + \frac{2 \sin^2 A 2 \cos^2 A}{\sin A \cos A} \\ 1 + \frac{1}{\sin^2 A \cos^2 A} + \frac{2 \sin A}{\sin A \cos A} \\ 1 + \frac{1}{\sin^2 A \cos^2 A} + \frac{2 \sin A}{\sin A \cos A} \\ 1 + \operatorname{Sec} A \cos C A^2 + 2 \sec A \csc A + \cos A \\ (1 + \sec A \csc A)^2 \\ 1 + \operatorname{Sec} A \cos C A^2 + 2 \sec A \csc A \\ (1 + \sec A \csc A)^2 \\ 1 + \frac{1}{\cos A} + \frac{\sin A}{1 + \cos A} \\ \frac{\sin A \cos A}{1 - \cos A} + \frac{\sin A}{1 + \cos A} \\ \frac{\sin A \cos A(1 + \cos A)}{(1 - \cos A)(1 + \cos A) \cos A} \\ \frac{\sin A \cos A(1 + \cos A) - \sin A \cos A}{(1 - \cos A)(1 + \cos A) \cos A} \\ \frac{\sin A \cos A(1 + \cos^2 A)}{\sin^2 A \cos^2 A} \\ \frac{\sin A \cos A(1 + \cos^2 A)}{\sin^2 A \cos^2 A} \\ \frac{\sin A \cos A(1 + \cos^2 A)}{\sin^2 A \cos^2 A} \\ \frac{\sin A \cos A(1 + \cos^2 A)}{\sin^2 A \cos^2 A} \\ \frac{\sin A \cos A(1 + \cos^2 A)}{\sin^2 A \cos^2 A} \\ \frac{\sin A \cos A(1 + \cos^2 A)}{\sin^2 A \cos^2 A} \\ \frac{\sin A \cos A(1 + \cos^2 A)}{\sin^2 A \cos^2 A} \\ \frac{\sin A \cos A(1 + \cos^2 A)}{\sin^2 A \cos^2 A} \\ \frac{\sin A \cos A(1 + \cos^2 A)}{\sin^2 A \cos^2 A} \\ \frac{\sin A \cos A(1 + \cos^2 A)}{\sin^2 A \cos^2 A} \\ \frac{\sin A \cos A(1 + \cos^2 A)}{\sin^2 A \cos^2 A} \\ \frac{\sin A \cos A(1 + \cos^2 A)}{\sin^2 A \cos^2 A} \\ \frac{\sin^2 A \cos^2 A}{\sin^2 A \cos^2 A \cos^2 A \cos^2 A \cos^2 A + \cos^2 A \cos^2 A \cos^2 A \\ \frac{\sin^2 A \cos^2 A}{\sin^2 A \cos^2 A \\ \frac{\sin^2 A \cos^2 A}{\sin^2 A \cos^2 A \cos^$		$7 + \tan^2 A + \cot^2 A$	
$\frac{eat^2A+cossec^2A+1+2cossec A}{cotA (cossec A+1)}$ $\frac{2 cossec^2A+2 cossec A}{cotA (cossec A+1)}$ $\frac{2 cossec^2A+2 cossec A}{cotA (cossec A+1)}$ $\frac{2 cossec A(cossec A+1)}{cotA (cossec A+1)}$ $= 2 \sec A$ Ans10 (Sin A+ Sec A) <sup>2</sup> + (CosA + CossecA) <sup>2</sup> Sin <sup>2</sup> A + Sec <sup>2</sup> A + 2 SinA Sec A + Coss <sup>2</sup> A + Cossec <sup>2</sup> A + 2 cosA cossecA 1 + Sec <sup>2</sup> A + 2 tan A + cossec <sup>2</sup> A + 2 cotA 1 + $\frac{1}{cos^2A} + \frac{1}{sin^2A} + \frac{2 sinA}{sinA} + \frac$	Ans9		
$\frac{1}{2 \operatorname{cosec}^{2} A + 2 \operatorname{cosec}^{2} A}{\operatorname{cosec}^{2} A + 2 \operatorname{cosec}^{2} A + 1} \operatorname{cosec}^{2} A} = 2 \operatorname{sec}^{2} A$ $\frac{1}{2 \operatorname{cosec}^{2} A (\operatorname{cosec}^{2} A + 1)} = 2 \operatorname{sec}^{2} A$ $\operatorname{Ans10} \left( \operatorname{Sin}^{4} A + \operatorname{Sec}^{2} A + 2 \operatorname{Sin}^{2} A \operatorname{cosec}^{2} A + 2 \operatorname{cos}^{2} A + 2 \operatorname{cos}^{2} A \operatorname{cosec}^{2} A \operatorname{cosec}^{2} A + 2 \operatorname{cos}^{2} A \operatorname{cosec}^{2} \operatorname{cosec}^{2} A \operatorname{cosec}^{2} \operatorname{cosec}^{2} A \operatorname{cosec}^{2} \operatorname{cosec}^{2} A \operatorname{cosec}^{2} A \operatorname{cosec}^{2} \operatorname{cosec}^{2} \operatorname{cosec}^{2} A \operatorname{cosec}^{2} \operatorname{cosec}^{2} \operatorname{cosec}^{2} \operatorname{cosec}^{2} A \operatorname{cosec}^{2} cose$	71137	$\frac{1}{\cos ec A+1} + \frac{1}{\cos A}$	
$\frac{2 \cose^{2}A + 2 \csc A}{\cot A (\cosee A + 1)}$ $\frac{2 \cos e A (\cos ee A + 1)}{\cot A (\cos ee A + 1)}$ $= 2 \sec C A$ Ans10 (Sin A+ Sec A) <sup>2</sup> + (CosA + CosecA) <sup>2</sup> Sin <sup>2</sup> A + Sec <sup>2</sup> A + 2SinA Sec A + Cose <sup>2</sup> A + 2 cosA cosecA 1 + Sec <sup>2</sup> A + 2 tan A + cosec <sup>2</sup> A + 2 cotA 1 + $\frac{1}{\cos^{2}A} + \frac{1}{\sin^{2}A} + \frac{2 \sin A}{\cos A} + \frac{2 \cos A}{\sin A}$ 1 + $\frac{1}{\sin^{2}A \cos^{2}A} + \frac{2 \sin^{2}A + 2 \cos^{2}A}{\sin A \cos A}$ 1 + (Sec A cosec A) <sup>2</sup> + 2 sec A cosec A 1 + (Sec A cosec A) <sup>2</sup> + 2 sec A cosec A 1 + (Sec A cosec A) <sup>2</sup> + 2 sec A cosec A (1 + Sec A cosec A) <sup>2</sup> + 2 sec A cosec A (1 + Sec A cosec A) <sup>2</sup> + 2 sec A cosec A (1 + Sec A cosec A) <sup>2</sup> + 1 + tosA $\frac{\sin A}{1 - \cos A} + \frac{\sin A}{\cos A} + \frac{\sin A}{\cos A}$ $\frac{\sin A \cos A (1 + \cos A) + \sin A (1 - \cos A)}{(1 - \cos A) (1 + \cos A) \cos A}$ $\frac{\sin A \cos A (1 + \cos A) + \sin A (1 - \sin A) \cos A}{\sin A \cos A}$ $\frac{\sin A \cos A (1 + \cos A) + \sin A (1 - \sin A) \cos A}{(1 - \cos A) (1 + \cos A) \cos A}$ $\frac{\sin A \cos A + \sin A \cos^{2}A + \sin A - \sin A \cos A}{\sin^{2}A + \sin^{2}A - \sin A \cos A}$		cot <sup>2</sup> A+cosec <sup>2</sup> A+1+2 cosec A	
$\frac{1}{\frac{\cot 4 (\cos ec \ A+1)}{\cos (2 - \cos ec \ A(\cos ec \ A+1))}}{\frac{2 \cos ec \ A(\cos ec \ A+1)}{\cos (2 - \cos (2 - \cos ec \ A+1))}}$ $= 2 \sec A$ Ans10 (Sin A+ Sec A) <sup>2</sup> + (CosA + CosecA) <sup>2</sup> Sin <sup>2</sup> A + Sec <sup>2</sup> A + 2SinA + cosec <sup>2</sup> A + 2 cosA cosecA 1 + Sec <sup>2</sup> A + 2 tan A + cosec <sup>2</sup> A + 2 cosA 1 + $\frac{1}{\cos^2 A} + \frac{2 \sin^2 A}{\sin^2 A} + \frac{2 \cos^2 A}{\sin A} + \frac{2 \cos^2 A}{\sin A} + \frac{2 \cos^2 A}{\sin A} + \frac{2 \sin^2 A}{\sin^2 A} + \frac{2 \sin^2 A}{\sin^2 A} + \frac{2 \cos^2 A}{\sin^2 A} + \frac{1}{\sin^2 A} + \frac{2 \cos^2 A}{\sin^2 A} + \frac{2 \cos^2 A}{\sin^2 A} + \frac{1}{\sin^2 A} + \frac{1}{\cos^2 A} + \frac{1}{\sin^2 A} + \frac$			
$\frac{2 \cos \epsilon \alpha \left( \cos \epsilon c + 1 \right)}{\cot 4 \left( \cos \epsilon c + 1 \right)}$ $= 2 \sec A$ Ans10 $(Sin A + Sec A)^{2} + (CosA + CosecA)^{2}$ $Sin^{2}A + Sec^{2}A + 2SinA Sec A + Cose^{2}A + 2 cosA cosecA$ $1 + Sec^{2}A + 2 tan A + cosec^{2}A + 2 cotA$ $1 + \frac{1}{\cos^{2}A} + \frac{1}{\sin^{2}A} + \frac{2sinA}{sinA} + \frac{2cosA}{sinA}$ $1 + \frac{1}{\sin^{2}A \cos^{2}A} + \frac{2Sin^{2}+2 \cos^{2}A}{SinA \cos A}$ $1 + \frac{5in^{2}A \cos^{2}A}{1 + \frac{1}{\sin^{2}A \cos^{2}A}} + \frac{2Sin^{2}+2 \cos^{2}A}{sinA \cos A}$ $1 + (Sec A cosec A)^{2} + 2 sec A cosec A$ $(1 + Sec A cosec A)^{2} + 2 sec A cosec A$ $(1 + Sec A cosec A)^{2}$ Ans11 $\frac{SinA}{1 - \cos A} + \frac{tanA}{1 + \cos A}$ $\frac{SinA \cos A(1 + \cos A)}{(1 - \cos A)(1 + \cos A) \cos A}$ $\frac{sinA \cos A(1 + \cos A) \sin A(1 - \cos A)}{(1 - \cos A)(1 + \cos A) \cos A}$ $\frac{sinA \cos A(1 + \cos A) \sin A(1 - \cos A)}{(1 - \cos A)(1 + \cos A) \cos A}$			
$\frac{1}{2 \sec A}$ Ans10 (Sin A+ Sec A) <sup>2</sup> + (CosA + CosecA) <sup>2</sup> Sin <sup>2</sup> A + Sec <sup>2</sup> A + 2SinA Sec A + Cos <sup>2</sup> A + Cosec <sup>2</sup> A + 2 cosA cosecA 1 + Sec <sup>2</sup> A + 2 tan A + cosec <sup>2</sup> A + 2 cotA 1 + $\frac{1}{\cos^2 A} + \frac{1}{\sin^2 A} + \frac{2 cosA}{\cos A} + \frac{2 cosA}{\sin A}$ 1 + $\frac{Sin^2 A + cosec^2A}{\sin^2 A \cos^2 A} + \frac{2 Sin^2 + 2 cos^2A}{\sin A \cos A}$ 1 + $\frac{Sin^2 A + cosecA}{\sin^2 A \cos^2 A} + \frac{3 cosA}{\sin A \cos A}$ 1 + (Sec A cosec A) <sup>2</sup> + 2 sec A cosec A (1 + Sec A cosec A) <sup>2</sup> + 2 sec A cosec A (1 + Sec A cosec A) <sup>2</sup> Ans11 $\frac{SinA}{1 - cosA} + \frac{SinA}{1 + cosA}$ $\frac{sinAcosA(1 + cosA) + sinA(1 - cosA)}{(1 - cosA)(1 + cosA)cosA}$ $\frac{sinAcosA + sinAcos2A + sinA - sinAcosA}{(1 - cosA)(1 + cosA)cosA}$			
$= 2 \sec A$ Ans10 $(Sin A + Sec A)^{2} + (CosA + CosecA)^{2}$ Sin <sup>2</sup> A + Sec <sup>2</sup> A + 2SinA Sec A + Cos <sup>2</sup> A + Cosec <sup>2</sup> A + 2 cosA cosecA $1 + Sec^{2}A + 2 tan A + cosec2A + 2 cotA$ $1 + \frac{1}{cos^{2}A} + \frac{1}{sin^{2}A} + \frac{2sinA}{cosA} + \frac{2cos^{2}A}{sinA}$ $1 + \frac{Sin^{2}A + cos^{2}A}{sin^{2}a \cos^{2}A} + \frac{2}{sin^{2}a \cos^{2}A}$ $1 + \frac{1}{sin^{2}A \cos^{2}A} + \frac{1}{sin^{2}a \cos^{2}A}$ $1 + \frac{1}{sin^{2}a \cos^{2}A} + \frac{1}{sin^{2}a \cos^{2}A}$ $\frac{sinA \cos^{2}(1 + \cos^{2}A)}{(1 - \cos^{2}A)(1 + \cos^{2}A) \cos^{2}A}$ $\frac{sinA(1 + \cos^{2}A)}{sin^{2}a \cos^{2}A}$ $\frac{sinA(1 + \cos^{2}A)}{sin^{2}a \cos^{2}A}$			
Ans10 $(Sin A + Sec A)^2 + (CosA + CosecA)^2$ $Sin^2A + Sec^2A + 2SinA Sec A + Cos^2A + Cosec^2A + 2 cosA cosecA1 + Sec^2A + 2tan A + cosec^2A + 2 cotA1 + \frac{Sic^2A + 2tan A + cosec^2A + 2 cotA}{sinA cosA}1 + \frac{Sic^2A + cos^2A}{Sin^2A cos^2A} + \frac{2Sin^2 + 2 cos^2A}{SinA cosA}1 + \frac{Sic^2A + cosec^2A}{1 + \frac{2}{sin^2A cos^2A}} + \frac{2Sin^2 + 2 cos^2A}{sinA cosA}1 + (Sec A cosec A)^2 + 2 sec A cosec A1 + Sec A cosec A)^2Ans11\frac{SinA}{1 - cosA} + \frac{tanA}{t + cosA}\frac{SinA cosA}{1 - cosA} + \frac{SinA}{cosA(1 + cosA)}\frac{SinA cosA + sinA(1 - cosA)}{(1 - cosA)(1 + cosA)cosA}\frac{SinA cosA + sinAcos^2A + sinA - sinAcosA}{(1 - cosA)(1 + cosA)cosA}\frac{SinA(1 + cos^2A)}{Sin^2 a cosA}$			
$\frac{\operatorname{Sin}^{2}A + \operatorname{Sec}^{2}A + 2\operatorname{Sin}A \operatorname{Sec} A + \operatorname{Cosec}^{2}A + 2\operatorname{cos}A \operatorname{cosec}A}{1 + \operatorname{Sec}^{2}A + 2 \operatorname{tan} A + \operatorname{cosec}^{2}A + 2 \operatorname{cot}A}{1 + \frac{\operatorname{Sin}^{2}A + \operatorname{cos}^{2}A}{\cos^{2}A} + \frac{2\operatorname{Sin}A}{\cos^{2}A}}{1 + \frac{\operatorname{Sin}^{2}A \cos^{2}A}{\sin^{2}A \cos^{2}A}} + \frac{2\operatorname{Sin}A \cos^{2}A}{\sin^{2}A \cos^{2}A}}{1 + \frac{2}{\sin^{2}A \cos^{2}A}} + \frac{2\operatorname{Sin}A \cos^{2}A}{\sin^{2}A \cos^{2}A}}{1 + (\operatorname{Sec} A \operatorname{Cosec} A)^{2} + 2 \operatorname{sec} A \operatorname{cosec} A}$ $\frac{1 + \operatorname{Sec} A \operatorname{cosec} A}{1 + \operatorname{Sec} A \operatorname{cosec} A} + \frac{2 \operatorname{cos} A}{\sin^{2}A \cos^{2}A}}$ $\frac{\operatorname{Sin}A}{1 - \operatorname{cos} A} + \frac{\operatorname{Sin}A}{1 - \cos^{2}A} + \frac{\operatorname{Sin}A}{\cos^{2}A (1 + \cos^{2}A)}}{\frac{\operatorname{Sin}A \cos^{2}}{(1 - \cos^{2}A)(1 + \cos^{2}A) \cos^{2}A}}}$ $\frac{\operatorname{Sin}A \cos^{2}A + \operatorname{Sin}A(1 - \cos^{2}A)}{(1 - \cos^{2}A)(1 + \cos^{2}A) \cos^{2}A}}$			
$\frac{1 + \sec^2 A + 2 \tan A + \csc^2 A + 2 \cot A}{1 + \frac{1}{\cos^2 A} + \frac{1}{\sin^2 A} + \frac{2}{\cos A} + \frac{2 \sin A}{\sin A} + \frac{2 \cos A}{\sin A}}{1 + \frac{5 \sin^2 A \cos^2 A}{\sin^2 A \cos^2 A}} + \frac{2 \sin^2 2 \cos^2 A}{\sin A \cos A}}{1 + \frac{1}{\sin^2 A \cos^2 A} + \frac{2}{\sin A \cos A}}{1 + (\sec A \csc A)^2 + 2 \sec A \csc A)}$ $\frac{1 + \sec A \csc A)^2}{1 - \cos A} + \frac{t \tan A}{1 + \cos A}$ $\frac{\sin A}{1 - \cos A} + \frac{t \sin A}{1 + \cos A}$ $\frac{\sin A \cos A(1 + \cos A) + \sin A(1 - \cos A)}{(1 - \cos A)(1 + \cos A) \cos A}}$ $\frac{\sin A \cos A(1 + \cos A) + \sin A(1 - \cos A)}{(1 - \cos A)(1 + \cos A) \cos A}}$ $\frac{\sin A \cos A(1 + \cos A) + \sin A(1 - \sin A) \cos A}{(1 - \cos A)(1 + \cos A) \cos A}}$ $\frac{\sin A \cos A(1 + \cos A) + \sin A(1 - \sin A) \cos A}{(1 - \cos A)(1 + \cos A) \cos A}}$	Ans10	$(Sin A + Sec A)^2 + (CosA + CosecA)^2$	
$\frac{1+\frac{1}{\cos^2 A}+\frac{1}{\sin^2 A}+\frac{2\sin A}{\cos A}+\frac{2\cos A}{\sin A}}{1+\frac{\sin^2 A\cos^2 A}{\sin^2 A\cos^2 A}+\frac{2\sin^2 2\cos^2 A}{\sin A\cos A}}$ $\frac{1+\frac{2\sin^2 A\cos^2 A}{\sin^2 A}+\frac{2\sin A\cos A}{\sin A\cos A}}{1+\frac{1}{\sin^2 A\cos^2 A}+\frac{2}{\sin A\cos A}}$ $\frac{1+(\text{Sec A cosec A})^2+2 \text{ sec A cosec A}}{(1+\text{Sec A cosec A})^2+2 \text{ sec A cosec A}}$ $\frac{\sin A}{1-\cos A}+\frac{\tan A}{1+\cos A}$ $\frac{\sin A}{1-\cos A}+\frac{\sin A}{\cos A(1+\cos A)}$ $\frac{\sin A\cos A(1+\cos A)+\sin A(1-\cos A)}{(1-\cos A)(1+\cos A)\cos A}}{(1-\cos A)(1+\cos A)\cos A}$ $\frac{\sin A(\cos A + \sin A\cos^2 A + \sin A - \sin A\cos A}{(1-\cos A)(1+\cos A)\cos A}}$ $\frac{\sin A(1+\cos^2 A)}{\sin^2 A\cos A}$		Sin <sup>2</sup> A + Sec <sup>2</sup> A + 2SinA Sec A + Cos <sup>2</sup> A + Cosec <sup>2</sup> A+ 2 cosA cosecA	
$\frac{1+\frac{1}{\cos^2 A}+\frac{1}{\sin^2 A}+\frac{2\sin A}{\cos A}+\frac{2\cos A}{\sin A}}{1+\frac{\sin^2 A\cos^2 A}{\sin^2 A\cos^2 A}+\frac{2\sin^2 2\cos^2 A}{\sin A\cos A}}$ $\frac{1+\frac{2\sin^2 A\cos^2 A}{\sin^2 A}+\frac{2\sin A\cos A}{\sin A\cos A}}{1+\frac{1}{\sin^2 A\cos^2 A}+\frac{2}{\sin A\cos A}}$ $\frac{1+(\text{Sec A cosec A})^2+2 \text{ sec A cosec A}}{(1+\text{Sec A cosec A})^2+2 \text{ sec A cosec A}}$ $\frac{\sin A}{1-\cos A}+\frac{\tan A}{1+\cos A}$ $\frac{\sin A}{1-\cos A}+\frac{\sin A}{\cos A(1+\cos A)}$ $\frac{\sin A\cos A(1+\cos A)+\sin A(1-\cos A)}{(1-\cos A)(1+\cos A)\cos A}}{(1-\cos A)(1+\cos A)\cos A}$ $\frac{\sin A(\cos A + \sin A\cos^2 A + \sin A - \sin A\cos A}{(1-\cos A)(1+\cos A)\cos A}}$ $\frac{\sin A(1+\cos^2 A)}{\sin^2 A\cos A}$		$1 + \text{Sec}^2 \text{A} + 2 \tan \text{A} + \cos \text{ec}^2 \text{A} + 2 \cot \text{A}$	
$\frac{1 + (\operatorname{Sec} A \operatorname{cosec} A)^{+} + 2 \operatorname{sec} A \operatorname{cosec} A}{(1 + \operatorname{Sec} A \operatorname{cosec} A)^{2}}$ Ans11 $\frac{\frac{SinA}{1 - \cos A} + \frac{tanA}{1 + \cos A}}{\frac{1 - \cos A}{1 - \cos A} + \frac{SinA}{\cos A(1 + \cos A)}}$ $\frac{\frac{SinA \cos A(1 + \cos A) + SinA(1 - \cos A)}{(1 - \cos A)(1 + \cos A)\cos A}}{(1 - \cos A)(1 + \cos A)\cos A}$ $\frac{\frac{SinA \cos A + \sin A \cos^{2} A + \sin A - \sin A \cos A}{(1 - \cos A)(1 + \cos A)\cos A}}{\frac{\sin A(1 + \cos^{2} A)}{\sin^{2} A \cos A}}$		1 1 2 sinA 2 cosA	
$\frac{1 + (\operatorname{Sec} A \operatorname{cosec} A)^{+} + 2 \operatorname{sec} A \operatorname{cosec} A}{(1 + \operatorname{Sec} A \operatorname{cosec} A)^{2}}$ Ans11 $\frac{\frac{SinA}{1 - \cos A} + \frac{tanA}{1 + \cos A}}{\frac{1 - \cos A}{1 - \cos A} + \frac{SinA}{\cos A(1 + \cos A)}}$ $\frac{\frac{SinA \cos A(1 + \cos A) + SinA(1 - \cos A)}{(1 - \cos A)(1 + \cos A)\cos A}}{(1 - \cos A)(1 + \cos A)\cos A}$ $\frac{\frac{SinA \cos A + \sin A \cos^{2} A + \sin A - \sin A \cos A}{(1 - \cos A)(1 + \cos A)\cos A}}{\frac{\sin A(1 + \cos^{2} A)}{\sin^{2} A \cos A}}$		$1 + \frac{1}{\cos^2 A} + \frac{1}{\sin^2 A} + \frac{1}{\cos A} + \frac{1}{\sin A}$	
$\frac{1 + (\operatorname{Sec} A \operatorname{cosec} A)^{+} + 2 \operatorname{sec} A \operatorname{cosec} A}{(1 + \operatorname{Sec} A \operatorname{cosec} A)^{2}}$ Ans11 $\frac{\frac{SinA}{1 - \cos A} + \frac{tanA}{1 + \cos A}}{\frac{1 - \cos A}{1 - \cos A} + \frac{SinA}{\cos A(1 + \cos A)}}$ $\frac{\frac{SinA \cos A(1 + \cos A) + SinA(1 - \cos A)}{(1 - \cos A)(1 + \cos A)\cos A}}{(1 - \cos A)(1 + \cos A)\cos A}$ $\frac{\frac{SinA \cos A + \sin A \cos^{2} A + \sin A - \sin A \cos A}{(1 - \cos A)(1 + \cos A)\cos A}}{\frac{\sin A(1 + \cos^{2} A)}{\sin^{2} A \cos A}}$		$1 + \frac{Sin^2A + cos^2A}{2} + \frac{2Sin^2 + 2cos^2A}{2}$	
$\frac{1 + (\operatorname{Sec} A \operatorname{cosec} A)^{+} + 2 \operatorname{sec} A \operatorname{cosec} A}{(1 + \operatorname{Sec} A \operatorname{cosec} A)^{2}}$ Ans11 $\frac{\frac{SinA}{1 - \cos A} + \frac{tanA}{1 + \cos A}}{\frac{1 - \cos A}{1 - \cos A} + \frac{SinA}{\cos A(1 + \cos A)}}$ $\frac{\frac{SinA \cos A(1 + \cos A) + SinA(1 - \cos A)}{(1 - \cos A)(1 + \cos A)\cos A}}{(1 - \cos A)(1 + \cos A)\cos A}$ $\frac{\frac{SinA \cos A + \sin A \cos^{2} A + \sin A - \sin A \cos A}{(1 - \cos A)(1 + \cos A)\cos A}}{\frac{\sin A(1 + \cos^{2} A)}{\sin^{2} A \cos A}}$		$\sin^2 A \cos^2 A$ $\sin^2 A \cos^2 A$	
$\frac{1 + (\operatorname{Sec} A \operatorname{cosec} A)^{+} + 2 \operatorname{sec} A \operatorname{cosec} A}{(1 + \operatorname{Sec} A \operatorname{cosec} A)^{2}}$ Ans11 $\frac{\frac{SinA}{1 - \cos A} + \frac{tanA}{1 + \cos A}}{\frac{1 - \cos A}{1 - \cos A} + \frac{SinA}{\cos A(1 + \cos A)}}$ $\frac{\frac{SinA \cos A(1 + \cos A) + SinA(1 - \cos A)}{(1 - \cos A)(1 + \cos A)\cos A}}{(1 - \cos A)(1 + \cos A)\cos A}$ $\frac{\frac{SinA \cos A + \sin A \cos^{2} A + \sin A - \sin A \cos A}{(1 - \cos A)(1 + \cos A)\cos A}}{\frac{\sin A(1 + \cos^{2} A)}{\sin^{2} A \cos A}}$		$1 + \frac{1}{1 + 2} + \frac{2}{1 + 2}$	
$\frac{1 + (\operatorname{Sec} A \operatorname{cosec} A)^{+} + 2 \operatorname{sec} A \operatorname{cosec} A}{(1 + \operatorname{Sec} A \operatorname{cosec} A)^{2}}$ Ans11 $\frac{\frac{SinA}{1 - \cos A} + \frac{tanA}{1 + \cos A}}{\frac{1 - \cos A}{1 - \cos A} + \frac{SinA}{\cos A(1 + \cos A)}}$ $\frac{\frac{SinA \cos A(1 + \cos A) + SinA(1 - \cos A)}{(1 - \cos A)(1 + \cos A)\cos A}}{(1 - \cos A)(1 + \cos A)\cos A}$ $\frac{\frac{SinA \cos A + \sin A \cos^{2} A + \sin A - \sin A \cos A}{(1 - \cos A)(1 + \cos A)\cos A}}{\frac{\sin A(1 + \cos^{2} A)}{\sin^{2} A \cos A}}$		$\sin^2 A \cos^2 A$ $\sin A \cos A$	
Ans11 $\frac{SinA}{1-cosA} + \frac{tanA}{1+cosA}$ $\frac{SinA}{1-cosA} + \frac{SinA}{cosA(1+cosA)}$ $\frac{SinAcosA(1+cosA) + SinA(1-cosA)}{(1-cosA)(1+cosA)cosA}$ $\frac{SinAcosA + sinAcos^2A + sinA - sinAcosA}{(1-cosA)(1+cosA)cosA}$ $\frac{SinA(1+cos^2A)}{Sin^2AcosA}$ $\frac{SinA(1+cos^2A)}{Sin^2AcosA}$		I + (Sec A cosec A) <sup>-</sup> + 2 sec A cosec A	
$\frac{SinA}{1-cosA} + \frac{SinA}{cosA(1+cosA)}$ $\frac{SinAcosA(1+cosA) + SinA(1-cosA)}{(1-cosA)(1+cosA)cosA}$ $\frac{SinAcosA + SinAcos^2A + SinA - SinAcosA}{(1-cosA)(1+cosA)cosA}$ $\frac{SinA(1+cos^2A)}{Sin^2AcosA}$		(1 + Sec A cosec A) <sup>2</sup>	
$\frac{SinA}{1-cosA} + \frac{SinA}{cosA(1+cosA)}$ $\frac{SinAcosA(1+cosA) + SinA(1-cosA)}{(1-cosA)(1+cosA)cosA}$ $\frac{SinAcosA + SinAcos^2A + SinA - SinAcosA}{(1-cosA)(1+cosA)cosA}$ $\frac{SinA(1+cos^2A)}{Sin^2AcosA}$	Ans11	$\frac{SinA}{2} + \frac{tanA}{2}$	
$\frac{1-\cos A^{+} \cos A(1+\cos A)}{\cos A(1+\cos A)+\sin A(1-\cos A)}$ $\frac{\sin A\cos A(1+\cos A)+\sin A(1-\cos A)}{(1-\cos A)(1+\cos A)\cos A}$ $\frac{\sin A\cos A+\sin A\cos^2 A+\sin A-\sin A\cos A}{(1-\cos A)(1+\cos A)\cos A}$ $\frac{\sin A(1+\cos^2 A)}{\sin^2 A\cos A}$		1-cosA 1+cosA	
$\frac{1-\cos A^{+} \cos A(1+\cos A)}{\cos A(1+\cos A)+\sin A(1-\cos A)}$ $\frac{\sin A\cos A(1+\cos A)+\sin A(1-\cos A)}{(1-\cos A)(1+\cos A)\cos A}$ $\frac{\sin A\cos A+\sin A\cos^2 A+\sin A-\sin A\cos A}{(1-\cos A)(1+\cos A)\cos A}$ $\frac{\sin A(1+\cos^2 A)}{\sin^2 A\cos A}$		Cim A Cim A	
$\frac{\frac{\sin A \cos A(1+\cos A)+\sin A(1-\cos A)}{(1-\cos A)(1+\cos A)\cos A}}{\frac{\sin A \cos A+\sin A \cos^2 A+\sin A-\sin A \cos A}{(1-\cos A)(1+\cos A)\cos A}}$ $\frac{\frac{\sin A(1+\cos^2 A)}{\sin^2 A \cos A}}{\frac{1+\cos^2 A}{2}}$		$\frac{SURA}{1} + \frac{SURA}{1} + \frac{SURA}{1}$	
$\frac{(1-cosA)(1+cosA)cosA}{sinAcosA + sinAcos^2A + sinA - sinAcosA}$ $\frac{(1-cosA)(1+cosA)(1+cosA)cosA}{\frac{sinA(1+cos^2A)}{sin^2AcosA}}$		$1-\cos A  \cos A(1+\cos A)$	
$\frac{(1-cosA)(1+cosA)cosA}{sinAcosA + sinAcos^2A + sinA - sinAcosA}$ $\frac{(1-cosA)(1+cosA)(1+cosA)cosA}{\frac{sinA(1+cos^2A)}{sin^2AcosA}}$			
$\frac{sinAcosA + sinAcos^{2}A + sinA - sinAcosA}{(1 - cosA)(1 + cosA)cosA}$ $\frac{sinA(1+cos^{2}A)}{sin^{2}AcosA}$			
$\frac{(1 - \cos A)(1 + \cos A)\cos A}{\frac{\sin A(1 + \cos^2 A)}{\sin^2 A \cos A}}$			
$\frac{sinA(1+cos^2A)}{Sin^2AcosA}$ $\frac{1+cos^2A}{2}$		sinAcosA + sinAcos <sup>2</sup> A + sinA - sinAcosA	
$\frac{sinA(1+cos^2A)}{Sin^2AcosA}$ $\frac{1+cos^2A}{2}$		(1 - cosA)(1 + cosA)cosA	
$\frac{Sin^2AcosA}{1+cos^2A}$			
$1+\cos^2 A$			
SinA cosA		$1+\cos^2 A$	
		SinA cosA	

	$\frac{1}{sinA\cos A} + \frac{cos^2 A}{sinA\cos A}$ Sec A cosecA + cotA	
Ans12	$\frac{(\operatorname{cosecA-SinA})(\operatorname{secA-cosA})}{\left(\frac{1}{\operatorname{sinA}} - \sin A\right)\left(\frac{1}{\operatorname{cosA}} - \cos A\right)}$ $\frac{\frac{1-\sin^{2}A}{\sin A}}{\frac{1-\cos^{2}A}{\cos A}} \times \frac{\frac{1-\cos^{2}A}{\cos A}}{\frac{1-\cos^{2}A}{\cos A}}$ $\frac{\frac{\cos^{2}A}{\sin A}}{\frac{\sin A}{\cos A}} \times \frac{\sin^{2}A}{\cos A}$ $\operatorname{RHS} : \frac{1}{\frac{1}{\tan A + \cot A}}$ $\frac{\frac{1}{\sin A} \cdot \cos A}{\frac{1}{\cos A} + \frac{1}{\sin A}} = \frac{\sin A \cos A}{\sin^{2}A + \cos^{2}A} = \sin A \cos A$	

Ans13	$\frac{cot58}{cot58} + \frac{cos59}{cot58} + \sin^2 50 + \sin^2 40 = 8 \sin^2 30$	
	$\frac{\cot 58}{\tan 32} + \frac{\cos 59}{\sin 31} + \sin^2 50 + \sin^2 40 - 8 \sin^2 30$ $\frac{\cot (90-32)}{\tan 32} + \frac{\cos (90-31)}{\sin 31} + \sin^2 (90-40) + \sin^2 40 - 8 \times (1/2)^2$	
	$\frac{\cos(32-52)}{\tan^{32}} + \frac{\cos(32-51)}{\sin^{31}} + \sin^{2}(90-40) + \sin^{2}40 - 8 \times (1/2)^{2}$	
	$\frac{\tan 32}{\tan 32} + \frac{\sin 31}{\sin 31} + \cos^2 40 + \sin^2 40 - 2$	
	= 1+1+1-2	
	= 1	
Ans14	$\operatorname{Sec}^{2}32 - \operatorname{cot}^{2}58 + \frac{\operatorname{cot}^{15}}{\operatorname{tan75}} - \frac{\operatorname{cos}^{27}}{\operatorname{sin63}} + 2\operatorname{sin}^{2}45$	
	$\operatorname{Sec}^{2}(90-58) - \operatorname{cot}^{2}58 + \frac{\operatorname{cot}(90-75)}{\tan 75} - \frac{\cos(90-63)}{\sin 63} + 2 \times \left(\frac{1}{\sqrt{2}}\right)^{2}$	
	$\text{Cosec}^2 58 - \cot^2 58 + \frac{\tan 75}{\tan 75} - \frac{\sin 63}{\sin 63} + 1$	
	= 1+1-1+1	
A 15		
Ans15	$\frac{\sin 40}{\cos 50} + \frac{\sec^2 35}{\csc^2 55} + \tan 20 \tan 40 \tan 45 \tan 50 \tan 70$	
	$\frac{\sin(90-50)}{\cos 50} + \frac{\sec^2(90-55)}{\csc^2 55} + \tan(90-70) \tan(90-50).$ 1. tan50 tan 70	
	$cos50$ $cosec^255$ $cos50$ $cosec^255$ $rad radius and radius an$	
	$\frac{\cos 50}{\cos 50} + \frac{\cos ec^2 55}{\cos ec^2 55} + \cot 70 \cot 50 \tan 50 \tan 70$	
	1+1+1	
Ans16	$=3$ $\sin^2 \theta = \sin^2 \theta$	
AIISTO	$\sin^2 65 + \sin^2 22 + \tan 10 \tan 25 \tan 60 \tan 65 \tan 80 + \frac{\sin 70}{\cos 20} + \frac{\sec^2 65}{\csc^2 25}$	
	$\sin^2(90-22) + \sin^2(22) + \tan(90-80) \tan(90-65) \sqrt{3} \tan(65 \tan 80 + \frac{\sin(90-20)}{\cos(20)} + \frac{\sec^2(90-25)}{\csc^2(25)}$	
	$\cos^{2}22 + \sin^{2}22 + \cot 80 \cot 65$ . $\sqrt{3}$ . Tan65 $\tan 80 + \frac{\cos 20}{\cos 20} + \frac{\csc^{2}25}{\csc^{2}25}$	
	$= 1 + \sqrt{3} + 1 + 1$	
	$=3+\sqrt{3}$	
Ans17	a) $\cos(20+x) = \sin 60$	
	$\cos(20+x) = \cos 30$	
	20 + x = 30	
	x = 10	
	b) $2 \sin (3x-15) = \sqrt{3}$	
	$Sin(3x-15) = \frac{\sqrt{3}}{2}$	
	Sin(3x-15) = sin 60	
	3x-15 = 60	
	x = 25	
	tan <sup>2</sup> (25+5) + sin <sup>2</sup> (2x25+10)	

$\tan^2 30 + \sin^2 60$	
$= 3 + \frac{3}{4}$	
= 15/4	
Ans18 m+n = 2tanA	
$m - n = 2 \sin A$	
(m+n) (m-n) = 2tanA 2 sinA	
$m^2 - n^2 = 4 \tan A \sin A$	
$4\sqrt{m n}$	
$=4 \sqrt{(sinA + tanA) (tanA - sinA)}$	
•	
$4\sqrt{tan^2A-sin^2A}$	
$4\sqrt{\frac{\sin^2 A}{\cos^2 A} - \sin^2 A}$	
$4\sqrt{\frac{1}{\cos^2 A}-5i\pi^2 A}$	
$4\sqrt{\frac{\sin^2 A\left(\frac{1}{\cos^2 A}-1\right)}{2}}$	
$4\sqrt{\sin^2 A}\left(\frac{1}{\cos^2 A}-1\right)$	
$\frac{1}{1-\cos^2 A}$	
$4\sqrt{\sin^2 A\left(\frac{1-\cos^2 A}{\cos^2 A}\right)}$	
$\sqrt{\sin^4 \Lambda}$	
$4\sqrt{\frac{\sin^4 A}{\cos^2 A}}$	
$=4\frac{\sin^2 A}{\cos^2 A}$	
= 4 tan A sin A	
Ans19 a) $3\cos^2 A + 7\sin^2 A = 4$	
$3\cos^2 A + 3\sin^2 A + 4\sin^2 A = 4$	
$3(\cos^2 A + \sin^2 A) = 4 - 4\sin^2 A$	
$3 = 4 (1 - \sin^2 A)$	
$34 = \cos^2 A$	
$\cos A = \frac{\sqrt{3}}{2}$	
2	
$\tan A = \sqrt{3}$	
b) $(\cos A + \sin A)^2 = (\sqrt{2} \cos A)^2$	
$\cos^{2}A + \sin^{2}A + 2 \sin A \cos A = 2 \cos^{2}A$	
$1+2 \sin A \cos A = 2\cos^2 A$	
$2 \sin A \cos A = 2 \cos^2 A \cdot 1$	
Now, $(\cos A - \sin A)^2 = \cos^2 A + \sin^2 A - 2 \sin A \cos A$	
$(\cos A - \sin A)^2 = 1-2 \sin A \cos A$	
$(\cos A - \sin A)^2 = 1.2 \cos^2 A + 1$	
$(\cos A - \sin A)^2 = 2 \cdot 2 \cos^2 A$	
$(\cos A - \sin A)^2 = 2 (1 - \cos^2 A)$	
$(\cos A \cdot \sin A)^2 = 2\sin^2 A$	
$(\cos A - \sin A) = \sqrt{2} \sin A$	
$(\cos A - \sin A) = \sqrt{2} \sin A$	
Ans20 $X^2+y^2+z^2$	
$= r^{2} \sin^{2} A \cos^{2} B + r^{2} \sin^{2} A \sin^{2} B + r^{2} \cos^{2} A$	
$=r^{2}\sin^{2}A(\cos^{2}B+\sin^{2}B)+r^{2}\cos^{2}A$	
$= r^2 \sin^2 A + r^2 \cos^2 A$	
$= r^2 (sin^2 A + cos^2 A)$	
$=r^{2}$	
Ans21 Tan 45 = $\frac{h}{r}$	
h = x	
$\tan 30 = \frac{h}{10+x}$ <b>h</b>	
$1 - \frac{h}{h}$	
$10+h = \sqrt{3}h$ 10 x	
$10 = \sqrt{3}h-h$ $10 = (\sqrt{3}-1)h$	

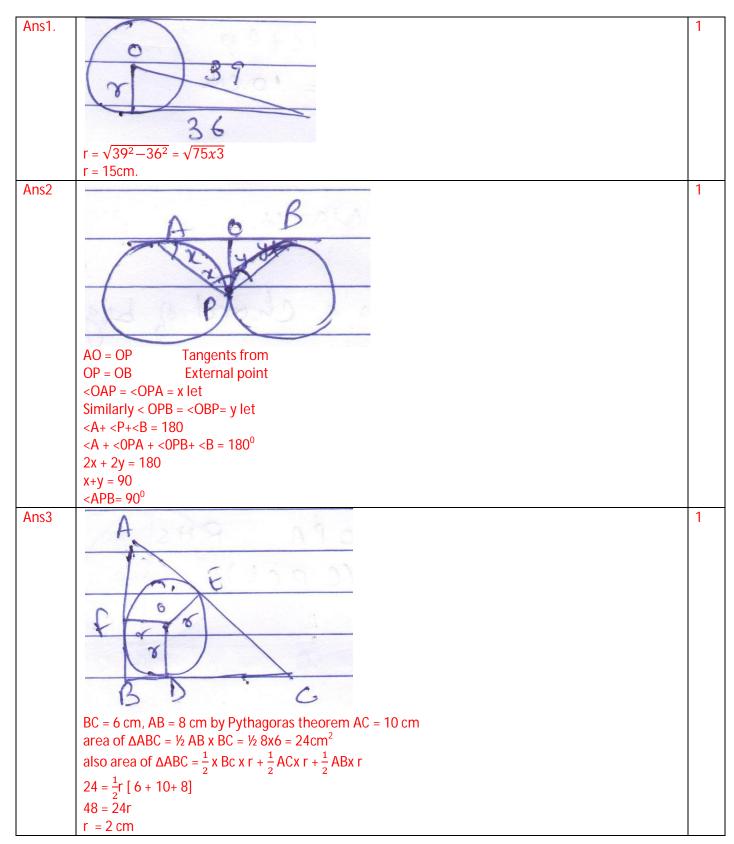
	10	
	$h = \frac{10}{\sqrt{3-1}}$	
	$h = \frac{10}{\sqrt{3} - 1} X \frac{\sqrt{3} + 1}{\sqrt{3} + 1}$	
	$\sqrt{3}-1$ $\sqrt{3}+1$ 10( $\sqrt{3}+1$	
	$h = \frac{10(\sqrt{3}+1)}{3-1}$	
	$h = \frac{10(\sqrt{3}+1)}{3-1}$ $h = \frac{10(1.73+1)}{2}$	
	$h = \frac{27.3}{2} = 13.65m$	
Ans22	Let the speed be x km/hrs	
711322	$y = \frac{15x}{60X60} km$	
	$y = \frac{1}{60X60} km^2$ tan 45 = 3000/2	
	z = 3000  m = 3  km.	
	$tan30 = \frac{3}{y+z}$ 3000	
	$\frac{1}{\sqrt{3}} = \frac{3}{y+3}$	
	$y+3 = 3\sqrt{3}$ <b>30</b>	
	$y = 3\sqrt{3} - 3$	
	$\frac{15x}{60x60} = 3\sqrt{3}-3$ Z Y	
	$X = \frac{3(\sqrt{3}-1)X60X60}{15}$	
	$\frac{15}{3600}$	
	$X = \frac{3600}{5} (1.73-1)$	
	x = 720x 0.73	
Ans23	x = 525.6 km/hr	
ALISZO	$t_{20} \neq 0$	
	$\tan 60 = \frac{90}{x}$	
	$\sqrt{3} = \frac{90}{x}$ $X = \frac{90}{\sqrt{3}}$ 90-h	
	$X = \frac{90}{\sqrt{3}}$	
	$\tan 30 = \frac{90-h}{x}$ h	
	$\frac{1}{\sqrt{3}} = \frac{90 - h}{90/\sqrt{3}}^{X}$ 60 x	
	$\sqrt{3} = 90/\sqrt{3}$ x	
	90 = 3(90-h) 60= 90-h	
	h = 30  m	
A 19 a Q 4		
Ans24	$\tan 60 = \frac{h}{x}$	
	$X = \frac{h}{\sqrt{3}}$ h-45	
	$\tan 30 = \frac{h-45}{x}$	
	$\frac{1}{\sqrt{3}} = \frac{h - 45}{h/\sqrt{3}} x $ 45	
	$\sqrt{3} - \frac{h}{\sqrt{3}}$	
	h = 3 (h-45) h = 3h - 135 x	
	$h = \frac{135}{2} = 67.5 \text{ m.}$	
1000F		
Ans25	$\tan 60 = \frac{h}{x}$	
	$h = x \sqrt{3}$	
	h h	
	$\tan 30 = \frac{h}{x+50}$ $30  60$	
	$\frac{1}{\sqrt{3}} = \frac{x\sqrt{3}}{x+50}$	
	x + 50 = 3x	
	(i) $x = 25 \text{ m}$	
	(ii) $h = 25\sqrt{3} m$	

-		· · · · · ·
Ans26		
	$\tan 60 = \frac{88.2}{x}$	
	$\sqrt{3} = \frac{88.2}{2}$ 88.2	
	$\sqrt{3} = \frac{88.2}{x} x$ $X = \frac{88.2}{\sqrt{3}} y$ 88.2 $X = \frac{38.2}{\sqrt{3}} y$ 88.2	
	$x = \sqrt{3}$ x y	
	$\tan 30 = \frac{88.2}{x+y}$	
	$\frac{1}{\sqrt{3}} = \frac{88.2}{\frac{88.2}{\sqrt{3}} + y}$	
	$\frac{1}{\sqrt{3}}$ 1 88.2 $\sqrt{3}$	
	$\frac{1}{\sqrt{3}} = \frac{88.2\sqrt{3}}{88.2 + \sqrt{3}y}$	
	$\sqrt{3}$ y + 88.2 = 88.2x3	
	$\sqrt{3}y = 264.6 - 88.2$	
	$y = \frac{176.4}{\sqrt{3}}$	
	$y = \frac{176.4 X \sqrt{3}}{3}$	
	$y = 58.8 \sqrt{3} \text{ m}$	
Ans27	$y = 50.0 \sqrt{5}$ m	
/ 1102 /	$\tan 45 = \frac{h}{x}$	
	$\tan 30 = \frac{h-100}{x}$	
	$\frac{1}{\sqrt{3}} = \frac{h - 100}{h}$ 100x 45	
	$h = \sqrt{3} h - 100 \sqrt{3}$	
	$100\sqrt{3} = \sqrt{3}h - h$	
	$\frac{100\sqrt{3}}{\sqrt{3}-1} = h$	
	$h = \frac{100\sqrt{3} (\sqrt{3}+1)}{3-1} = \frac{100(3+\sqrt{3})}{2} = 50 (3+\sqrt{3})m$	
Ans28	$x = h = 50 (3 + \sqrt{3})m$	
AII520	$\tan 45 = \frac{h}{x}$	
	x = h h-100 $30$	
	$\tan 30 = \frac{h-100}{x}$	
	$\frac{1}{\sqrt{3}} = \frac{h - 100}{h}$ 100x 45	
	$h = \sqrt{3} h - 100 \sqrt{3}$	
	$100 \sqrt{3} = \sqrt{3} h - h$	
	$\frac{100\sqrt{3}}{\sqrt{3}-1} = h$	
	$h = \frac{100\sqrt{3} (\sqrt{3}+1)}{3-1} = \frac{100(3+\sqrt{3})}{2} = 50 (3+\sqrt{3})m$	
Apc20	$x = h = 50 (3 + \sqrt{3})m$	
Ans29	$\tan \Theta = \frac{h}{a}$	
	$\tan(90-\Theta) = \frac{h}{b}$	
	$\cot\Theta = \frac{h}{b}$	
	$\tan \Theta = \frac{b}{h}$ $\Theta$ $\Theta$ $\Theta$	
	h $b h$ $b h$ $b h$ $b h$ $b h$	
	$= \frac{b}{h} = \frac{h}{a}$ $= h^{2} = ab$	
	$H = \sqrt{ab}$	
Ans30		
7 11300	$\tan 60 = \frac{h}{x}$	
	$x\sqrt{3} = h$	
	$\tan 30 = \frac{h}{150 - x} \qquad h$	
	$\frac{1}{\sqrt{2}} = \frac{\chi\sqrt{3}}{170}$	
	$\sqrt{3} = \frac{150 - x}{150 - x}$ 150-x=3x	

150=4x	
x = 37.5m	
h = $37.5\sqrt{3}$ m	

#### Test Paper Session 2017-18

CLASS 10 SUBJECT Mathematics CHAPTER- 10 Circles



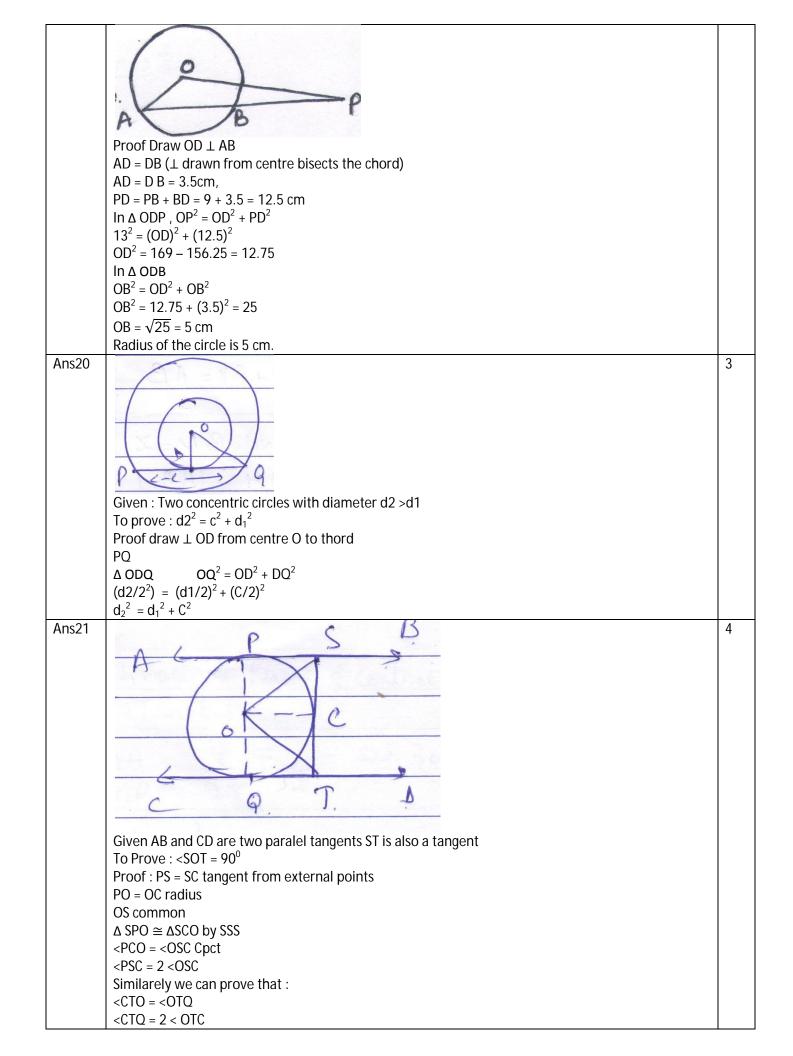
Ans4	0 B	1
	A	
	8	
	AB = AC	
	PB = PR Tangents from external point	
	QR = QC	
	Perimeter of $\triangle$ APQ	
	= AP + PQ + AQ $= AP + PR + RQ + AQ$	
	= AP + PR + RQ + AQ $= AP + PB + QC + AQ$	
	$= AP + PB + QC + AQ$ Perimeter of $\triangle APQ = AB + AC = 10 \text{ cm}$	
Amar	$Perimeter of \Delta APQ = AB + AC = 10 \text{ cm}$	2
Ans5		2
	IT	
	TB	
	Given : AB is a chord of bigger circle centre O.	
	To prove $AP = PB$	
	Join OA ,OB and OP	
	Proof : AB is $\perp$ to OP as radius is $\perp$ to tangent at point of contact	
	In $\Delta OAP$ and $\Delta OAB$	
	OA = OB = radius of bigger circle	
	$\langle OPB = \langle OPA   each 90^{\circ}$	
	OP = OP common	
	$\Delta OPB \cong \Delta OPA RHS$	
	AP = PB (Cpct)	
Ans6	P	2
	10++>A	
	B.	
	Given Two tanget AP and AB, O is centre	
	To prove AP = AB	
	Proof : $\Delta$ OPA and $\Delta$ OBA	
	OP = OB = radius of circle	
	<pre><opa -="" <oba="" =="" at="" contact<="" is="" of="" perpendicular="" point="" pre="" radius="" tangent="" to=""></opa></pre>	
	OA = OA common	
	$\Delta \text{ OPA} \cong \Delta \text{OBA RHS}$ AP = AB (Cpct )	-
Ans7	$<0 + $	2
	OQPR is quadrilateral so, $140 + x = 180$	
	$\begin{bmatrix} \therefore < Q = < R = 90^{\circ} \\ 0 \end{bmatrix}$	
	Tangent makes 90° with radius at point of contact ]	
	x = 180-140 = 40	
	K	

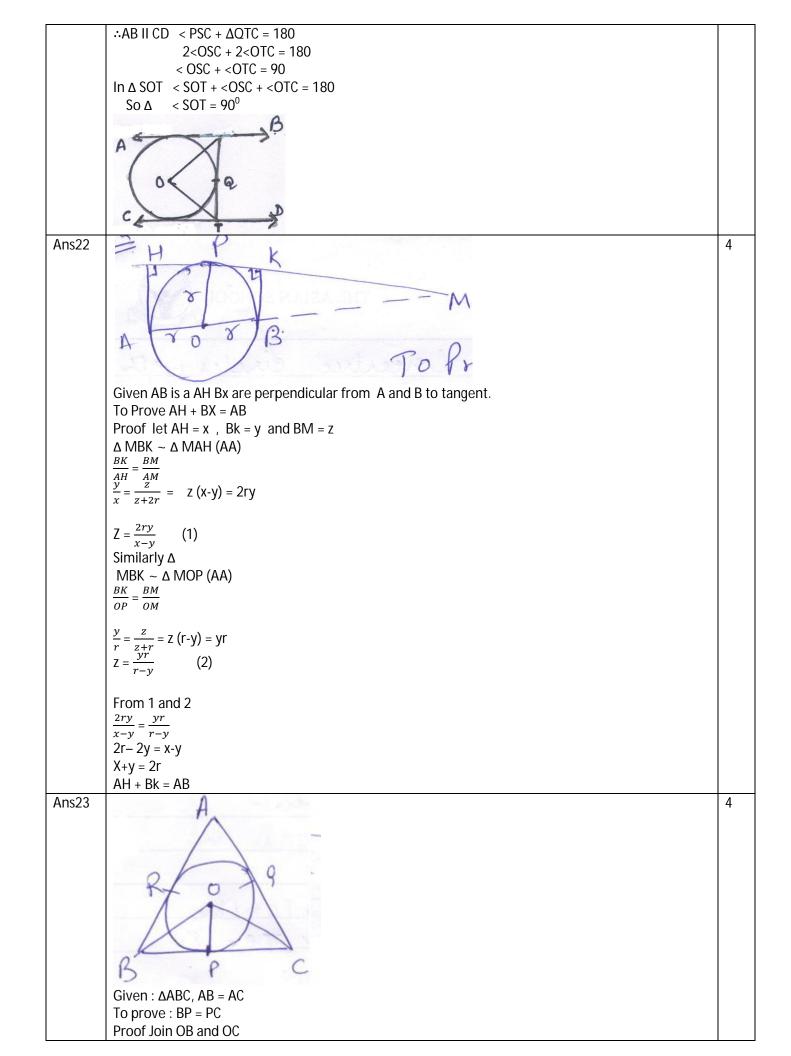
Ans8.		2
	$r = 3 \text{ cm}, R = 5 \text{ cm}$ $\ln \Delta \text{ OPL OL} = 5 \text{ cm}$ $OP = 3 \text{ cm}$ $LP = \sqrt{OL^2 - OP^2} = 5^2 - 3^2 = \sqrt{16}$ $LP = 4$ Length of chord = 2x 4 = 8 cm.	
Ans9	Let AB be the diameter of circle < OAP = < OBQ = 90 Radius is $\perp$ to tangent at point of contact. < OAP + < OBQ = 180 Which prove cointerior angles are supplementary $\rightarrow$ AP II BQ	2
Ans10	Given AB is a chord AOC is a diameter To Prove : $\langle BAT = \langle ACB \rangle$ Proof : AOC is diameter $\rightarrow \langle ABC = 90^{\circ}$ Let $\langle BAT = 1, \langle BAC = 90 - \langle 1 \rangle$ $\therefore \ln \Delta ABC$ $\langle ACB + \langle CAB + \langle CBA = 180 \rangle$ $\langle ACB + 90 - \langle 1 + 90 = 180 \rangle$ $\langle ACB = \langle 1 = \langle BAT \text{ Hence prove.} \rangle$	2
Ans11	A	2

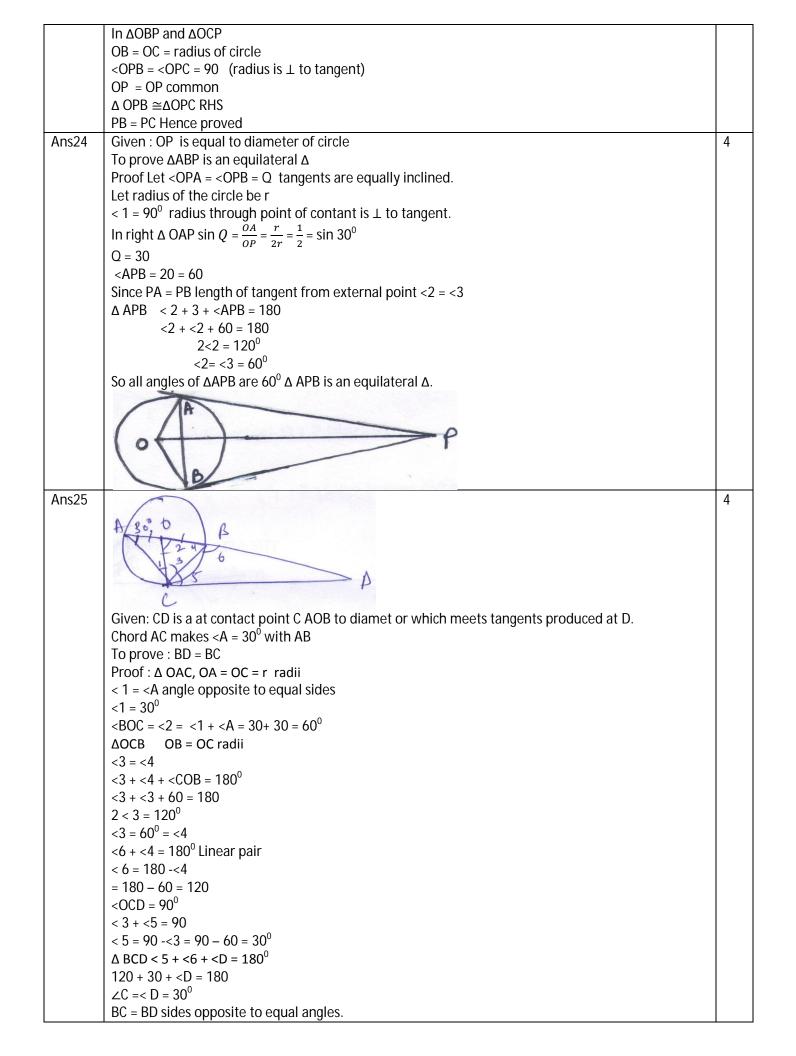
<b></b>		1
	- Ch	
	3 - 60 0	
	- 1	
	Given AP and BP are two tangents included at an angle of $60^{\circ}$ .	
	To find AP	
	Proof : $\triangle OPB \cong \triangle OPA$ as < OBP = < OAP = 90	
	RHS OP = OP	
	OA = OB = radius	
	$< OPB = < OPA = \frac{60}{2} = 30^{\circ}$	
	$\Delta OBP  \frac{OB}{BP} = \tan 30^{\circ}$	
	$3 = \frac{BP}{\sqrt{3}}$	
	$BP = 3\sqrt{3}$	
	3x 1.732	
	= 5.196 cm.	
Ans12	Given A circle with centre O in which OP is a radius and AB is a line through P such that $OP \perp AB$	2
	To prove : AB is a tangent to the circle at the point P. Construction :Take a point Q different from P on AB join OQ.	
	Proof : We know that the perpendicular distance from a point to a line is the shortest distance	
	between then $OP_{\perp}$ AB.	
	OP is the shorteest distance form O to AB OP < OQ	
	q lies outside the circle.	
	Thus every point on AB other than P, lies outside the circle.	
	AB meets the circle at the point pointy hence AB is the tanget to the circle at the point P.	
	ONALTAS	
	B	
Ans13	Given AB = 6 cm, BC = 8 c, $\sqrt{23}\sqrt{3}$ (100 = 10	3
	AC = $\sqrt{8^2 6^2} = \sqrt{100} = 10$ To find , Radius of the circle	
	Proof : lest x be the radius of the circle in right $\triangle ABC$ , AC = 10 gm, AB = 6 cm, BC = 8 cm	
	Now in quadralateral OPBR	
	$ each$	
	$< \text{ROP} = 90^{\circ}$	
	OP = OR OPPR is a square with each side x sm	
	OPBR is a square with each side x cm BP = PB = xcm	
	CR = 8-x, $PA = 6-x$	
	AQ = AP tangents from external point	
	AQ = AP = 6-x, $CQ = CR = 8-x$	
	AC = AQ + CQ	
	10 = 6 - x + - x 2x = 4 x = 2 cm,	
		I

	R	
	BLIPA	
Ans14	Given : A parallelogram say ABCD. Let the parallelogram touch the circle at the point P,Q R, and S, As AP and AS are tangents to the circle drawn from an external point A. AP = AS, BP = BQ CR = CQ, DR = DS adding all we get (AP + BP) + (CR + DR) = AS + BQ + CQ + DS = AS + DS + BQ + CQ AB + CD = AD + BC AB + AB = AD + AD $\therefore CD = AB, BC = AD$ Opnosite sides of Parallelogram	3
	Opposite sides of Parallelogram 2AB = 2AD AB = AD	
	ABCD is a rhumbus	
Ans15	In right $\triangle$ O AT, $\cos 30 = \frac{AT}{0T}$ $\frac{\sqrt{3}}{2} = \frac{AT}{04}$ AT = 2 $\sqrt{3}$ cm	3
Ans16	Given :Two tangents PT and PT' To prove < TPT' = $2 < OTT'$ Proof < $OTP = < OT'P = 90$ Radius is $\perp$ to tangent < TOT' + < TPT' = $180$ <tot' +="" <="" tpt'="&lt;math">180 <tot' <math="" =="">180 - <tpt'< math=""> <math>\Delta OTT', OT = OT'</math> radius &lt; <math>OTT' = <ot't< math=""> angle opposite to equal sides of <math>\Delta</math>.</ot't<></math></tpt'<></tot'></tot'>	3

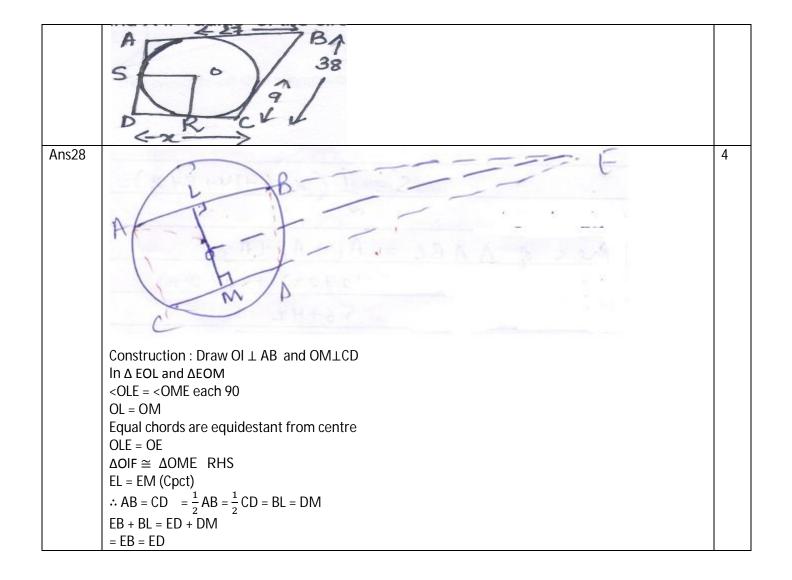
180-CTPT + 2-COTT = 180 CTPT + 2-COTT Proved3Ans17A $P$ Ans17A $P$ Given two tangents PA and PB are drawn. To prove: OP is perpendicular bisector of AB i.e. AQ = OB and AQO = <aqp 90°<br="" ==""></aqp> Proof: <qpa <qpb<br="" ==""></qpa> $A AOAP \cong AOBP$ $AOAP \cong AOBP$ $QPA = QPB$ $QPA = QPB = AASQPA = QAP = AOBPQPA = QPB = AASQPA = QAP = AOBPQP = OP commonAPQA \cong APQB = AASQA \cong AOBB (SAS)AOA \cong AOB = FOP Descts ABAOQA \cong AODB (SAS)AOA = AODB = 0POB = OAAOB = COA = -QOA = hence proved.OP = 1 Bisector of AB.3Ans18Image: Comparison of the tangentsTo prove: Proof: OT: PT is a quadrilateral3Ans19Image: Comparison of the tangentsTo prove: 3$		< TOT' + <ott' (asp)<="" +="" <ot't="180" th=""><th></th></ott'>	
<ipt' 2-ott'="" =="" proved<="" th="">Ans17AAns17AGiven two tangents PA and PB are drawn. To prove : OP is perpendicular bisector of AB i.e. <math>AQ = OB</math> and <math>AQO = -AOP = 90^{\circ}</math>Given two tangents PA and PB are drawn. To prove : OP is perpendicular bisector of AB i.e. <math>AQ = OB</math> and <math>AQO = -AOP = 90^{\circ}</math><math>OP = <qpb< math=""><math>A OAP = AOBP</math><math>AP = BP</math><math>OP = OP</math> common <math>APOAB = AOBB<math>AOAP = AOBP</math><math>AOA = AOBP</math><math>AOA = AOBP</math><math>AOA = AOBB = AAS</math><math>OA = OB = radius</math><math>AO = OB = AOB</math><math>AOA = AOBB = 180</math><math>2-OOA = AOB = 90^{\circ}</math> hence proved.<math>OP is 1 bisector of AB.Ans18Given PT and PT' are two tangentsTo prove: <math><tpt +="" <tot="180&lt;/math"> Proof: <math>OT PT is a quadrilateral<math><opt +="" 1t'="" <tot="360&lt;/math"><math>OP i + <tot +="" 10t="180&lt;/math" <tot="">Proof: <math>OT PT + (TOT + 180)</math>Proof: <math>OT PT + <tot +="" 10t="180&lt;/math">Ans19Given OP = 13 cm AB = 7 cm BP = 9 cm3</tot></math></tot></math></opt></math></math></tpt></math></math></math></qpb<></math></ipt'>			
Ans17A3Given two tangents PA and PB are drawn. To prove : OP is perpendicular bisector of AB i.e. AO = OB and AOO = <aop 90°<br="" ==""></aop> Proof: $< OPA = : AOAP \cong \Delta OBP< OPA = : AOAP \cong \Delta OBPAPQA \cong APQB AASOAA = OB = OP bisects ABAOAP \cong AOBAOB = COP bisects ABAOAP \cong OOB= OB = OPOP = OP commonAPQA \cong APQB AASOAA = OB = radiusAQ = OB proved< OAB = - OAB= OAB = OP= OAB = OP bisects ABAOA \cong AOAB = SOBA= OOA = OP is L bisector of AB.3Given PT and PT are two tangentsTo prove : Proof : OTP P os a quadrilateral< OTP + < OTP + 3Ans18Ans19Given OP = 13 cm AB = 7 cm BP = 9cm3$			
Given two tangents PA and PB are drawn.         To prove: OP is perpendicular bisector of AB i.e. AQ = QB and AQQ = <aqp 90°<="" =="" td="">         Proof:         QPA = <qpb< td=""> <math>\cdot \Delta OAP = \Delta OBP</math> <math><qpa <qbp<="" =="" math=""> <math>\cdot AP = BP</math>         QP = QP common         <math>AP = BP</math>         QP = <math>OP</math> bisects AB         <math>\Delta OAP = \Delta OB P</math> <math><qa =="" \delta="" b="OP&lt;/math"> <math>QP = A = QBP</math> <math>AP = BP</math>         QP = <math>OP</math> common         <math>AP = AP = BP</math>         QP = <math>AS</math> <math>AO = OB = radius</math> <math>AO = OB</math> proved         <math><oab -oba<="" =="" math=""> <math>&lt; OA = OB = radius</math> <math>AO = OB</math> proved         <math><oa =="" aoqb<="" math=""> <math><oa =="" ob="radius&lt;/math"> <math>AO = OB</math> proved         <math><oa =="" aoqb<="" math=""> <math><oa =="" ob="radius&lt;/math"> <math>AO = OB</math> <math><ob =="" math="" oa<=""> <math>&lt; OOA = AOQB = 80^{\circ}</math> <math>SOOA = COBB = 90^{\circ}</math> hence proved.         <math>OP = I a bisector of AB.</math>         Ans18         <math>Arrol P + arr two tangents</math> <math>To prove : .TPT + <tot 180<="" =="" math=""> <math>Proof : OT P = ros a quadrilateral</math> <math><op +="" 0="" <="" <tot="360&lt;/math" rvt="" tp=""> <math><tp +="" <tot<="" math=""></tp></math></op></math></tot></math></ob></math></oa></math></oa></math></oa></math></oa></math></oab></math></qa></math></qpa></math></qpb<></aqp>	A 17		2
$\begin{array}{c} < OQA = < OQB = 90^{\circ} \text{ hence proved.} \\ OP \text{ is } \perp \text{ bisector of AB.} \end{array} \\ \hline \\ Ans18 \\ \hline \\ \hline \\ Given PT \text{ and PT' are two tangents} \\ To prove : < TPT' + $	Ans17	A A Given two tangents PA and PB are drawn. To prove : OP is perpendicular bisector of AB i.e. $AQ = QB$ and $AQO = \langle AQP = 90^{\circ}$ Proof : $\langle QPA = \langle QPB \rangle$ $: \Delta OAP \cong \Delta OBP$ $\langle QPA = \langle QBP \rangle$ : AP = BP QP = QP common $APQA \cong \Delta PQB$ AAS $QA = QB \rightarrow OP$ besets AB $\Delta OQA \cong \Delta OQB$ (SAS) : OA = OB = radius AQ = QB proved $\langle OAB = \langle OBA \rangle$ : OB = OA $: \langle OB = OA \rangle$ $: \langle OQA = \langle OQB \rangle$ But $\langle OQA + \langle OQB = 180 \rangle$ $2\langle OQA = 180 \rangle$	3
OP is $\perp$ bisector of AB.3Ans18 $\neg$ $\bigcap$ <t< td=""><td></td><td></td><td></td></t<>			
Ans18T $i$			
Given PT and PT' are two tangents To prove : <tpt' +="" <tot'="180&lt;br/">Proof : OT' PT os a quadrilateral <math><otp +="" <ot'p="" <tpt'="" <tt'o="360&lt;/math"> <math><otp <ot'p="90^{0}&lt;/math" ==""> Radius is <math>\perp</math> to tangent. <math>90+90 + <tpt' +="" <tot'="360&lt;/math"> <math><tpt' +="" <tot'="180&lt;/th">3Ans19Given OP = 13 cm AB = 7 cm BP = 9cm3</tpt'></math></tpt'></math></otp></math></otp></math></tpt'>		UP IS 1 DISECTOR OF AB.	
Ans19         Given OP = 13 cm AB = 7 cm BP = 9cm         3	Ans18	Given PT and PT' are two tangents To prove : $\langle TPT' + \langle TOT' = 180$ Proof : OT' PT os a quadrilateral $\langle OTP + \langle OT'P + \langle TPT' + \langle TT'O = 360$ $\langle OTP = \langle OT'P = 90^{0}$ Radius is $\perp$ to tangent. $90+90 + \langle TPT' + \langle TOT' = 360$	3
	Apc10		2
Lo tind redius of airelo	ANSTY	Given OP = 13 cm AB = 7 cm BP = 9cm To find radius of circle.	3







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Ans26	A	4
	Å	
	2 2 2	
	VE E	
	CAG-DES+B	
	Given CD = 6 cm, BD = 8 cm	
	radius 4 cm	
	Join OC OA and OB	
	We know CD = CF = 6 cm	
	BD = BE = 8  cm	
	AF = AE = x cm	
	ΔΟCΒ	
	area of $\Delta A1 = \frac{1}{2} X CB X OD = \frac{1}{2} x 14 x 4 = 28$	
	ΔΟCΑ	
	area of $\triangle A2 = \frac{1}{2}x AC x OE = \frac{1}{2}(6+x) x 4$	
	= 12 + 12x	
	area of $\triangle A3 = \frac{1}{2} \times AB \times DE = \frac{1}{2} (8+x) \times 4 = 16 + 2 \times 10^{-1}$	
	Semiperi meter of $\triangle ABC = \frac{1}{2}(AB + BC + AC)$	
	$S = \frac{1}{2}(x + 6 + 14 + 8 + x) = 14 + x$	
	area of $\triangle ABC = A1 + A2 + A3$	
	28 + 12 + 2x + 16 + 2x	
	56 + 4x	
	area of $\triangle ABC = \sqrt{S(S-9)(S-b)(S-c)}$	
	$= \sqrt{(14+x)(14+x-14)(14+x-x-6)(14-8)}$	
	$=\sqrt{(14 + x)(x)(8)(6)}$	
	$\sqrt{(14+x)48x} = 56 + 4x$	
	Squaing $(14+x) 48x = 16 (14+x)^2$	
	$^{-3}x = 14 + x$ 2x = 14 x = 7	
	2x = 14 x = 7 AC = 6 + x = 6+7 = 13 cm	
	AC = 0 + x = 0 + 7 = 15  cm AB = 8 + x = 8 + 7 = 15  cm	
Ans27	Radius of circle 10 cm	4
AII327	BU = BT	4
	CT = CR tangents from	
	DS = DR external points	
	BT = BU = 27	
	CT = 38-27 = 11	
	CT = CR = 11  cm	
	DR = x - 11	
	DR = S0 = x-11 = radius of circle	
	x -11 = 10	
	x = 21	
	$\therefore$ < D = 90 <sup>°</sup> < 1 = <2 = 90 radius is $\perp$ to tangent	
	DROS is a square	
	$\therefore$ DR = OS	



	Test Paper Session 2017-18	
	CLASS 10 SUBJECT Mathematics CHAPTER- 12 Area Related to Circles	
Ans1	$\pi r + 2r = 36$	1
	$r = \frac{36}{\pi + 2} = 7$	
	d = 14  cm Area = 81	
Ans2	Area = 81	1
	$a^2 = 81$	
	$\begin{array}{l} a = 9 \\ P = 36 \text{ cm} \end{array}$	
	$\pi r + 2r = 36$	
	r = 7	
	Area = $\frac{1}{2\pi} r^2$	
	$= \frac{1}{2} \times \frac{22}{7} = 77 \text{ cm}^2$	
Ans3	$r = 21 \text{ cm}$ Ans= $21\pi$ units	
Ans4	$2\pi r = 49$	
	$r = 2a/\pi$ ratio of areas = $\pi r^2/a^2$	
	ratio of areas = $\pi f / a$ = $\pi (4/\pi^2) = 4/\pi$	
Ans5	$2\pi r = 100 \qquad r = \frac{100}{\pi} d = \frac{200}{\pi}$	
	$2\pi n = 100 \qquad 1 = \frac{\pi}{\pi} d = \frac{\pi}{\pi}$	
	Let side of square is a. $A$ B	
	$a^2 + a^2 = \left(\frac{200}{\pi}\right)^2$	
	$2a^2 = \frac{40000}{\pi^2}$	
	$a^2 = \frac{20000}{\pi^2}$	
	C D	
	$a = \frac{100\sqrt{2}}{2}$	
Ans6	$\frac{\pi}{r = 14 \text{ cm}}; 1 \text{ min} = 6^{\circ}$	
	$15 \min = 90^{\circ}$	
	Area $=\frac{\theta}{360} \times \pi r^2$	
	$=\frac{90}{360}\pi \ 14 \text{ x } 14 = 49 \ \pi \ \text{cm}^2$	
Ans7	$\pi r + 2r = 66$	
	$r = \frac{66}{\pi + 2}$	
Ans8	a = side of square	
Aliso	r = radius	
	$a^2 = \pi r^2$	
	$\frac{a}{r} = \sqrt{\pi}$	
	r	
	Ratio of perimeter	
	$=\frac{4a}{2\pi r}=\frac{2}{\pi}\sqrt{\pi}$	
	$2\pi r \pi$	
	$=\frac{2}{\sqrt{2}}$	
Ans9	$=\frac{2}{\sqrt{\pi}}$ 1 min = 6 <sup>0</sup>	
	$35 \text{ min} = 210^{\circ}$	
	Area = $\frac{\theta}{360} \times \pi r^1$	
	$360^{-100}$ $343^{-22}$ $1078^{-22}$	
A	$=\frac{210}{360} \times \pi \times 14 \times 14 = \frac{343}{3} \times \frac{22}{7} = \frac{1078}{3} \text{ cm}^2$ Similar to answer 9	
Ans10	Similar to answer 9	
	<u> </u>	

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A:==11	-r <sup>2</sup> ) -r	
Ans11	$\pi r^2 = 2 \pi r$ r = 2	
Ans12	I = 2 If we fold the semicircle then the slant height will be 14cm, let radius of cone be R, and height be h.	
711312	d = 28; $r = 14$	
	$\pi r = R(2 \pi)$	
	R = 7 cm	
	$H^2 = 14^2 - 7^2 = 147$	
	H = $7\sqrt{3}$ cm	
	Volume = $\pi r^2 h = \frac{22}{7} \times 49 \times 7\sqrt{3}$	
	$= 1078 \sqrt{3} cm^3$	
Ans13	2πr = 22	
	$r = \frac{11}{\pi} = 11 x \frac{7}{22} = \frac{7}{2}$	
	Area of quadrant $=\frac{1}{4}\pi r^2$	
Ans14	$= \frac{1}{4} \times \frac{22}{7} X \frac{7}{2} \times \frac{7}{2} = \frac{77}{8} \text{ cm}$ r = 12 cm $\theta$ = 120 <sup>0</sup>	
AUS14	Area of minor segment	
	$=\frac{120}{360} \times 3.14 \times 12^2 - \frac{1}{2} \times 12^2 \times \frac{3}{2}$	
	$=12^2\left(\frac{3.14}{3}-\frac{1.73}{4}\right)$	
	$= 144\left(\frac{12.56-5.19}{12}\right)$	
	$= 144 \text{ x} - \frac{7.37}{12} = 88.44 \text{ cm}^2$	
Ans15	If we assume a square shaped filed,	
	Increase in area :	
	$=\frac{90}{360} \times \pi 23^2 - \frac{90}{360} \times \pi 16^2$	
	$=\frac{1}{4}\pi$ (529 – 256)	
	$= 2 \frac{273}{4} \times \frac{22}{7} = \frac{6006}{28} \text{ cm}^2$	
Ans16	Let radius of circle is r and side of square is 12cm.	
	Area of remaining part :	
	Area of $\Delta$ – Area of circle	
	$\sqrt{\frac{3}{4}}$ side <sup>2</sup> = 3 $\left(\frac{1}{2}X \ 12 \ X \ r\right)$	
	$\sqrt{\frac{3}{4}} \times 12^2 = 18r$	
	$ \begin{array}{c} \sqrt{4} \\ r = 2\sqrt{3} \end{array} $	
	: Area = $\sqrt{\frac{3}{4}} \times 12^2 - \pi (2\sqrt{3})^2$	
	$=(36\sqrt{3}-12\pi)$ cm <sup>2</sup>	
Ans17	side of square = 14 cm	
	Area of shaded part :	
	= side <sup>2</sup> – 4sectors	
	$= 14^2 - 4x \frac{90}{36} x \pi 7^2$	
	$= 196 - 49\pi$	
Apo10	$= 196 - 154 = 42 \text{ cm}^2$	
Ans18	$r^2 + r^2 = 25$	
	$r^2 = \frac{25}{2}$	
	$r = \frac{5}{\sqrt{2}}$ .	
	Area of minor segment	
	Area or minor segment	

$\frac{90}{360} X 3 : 14 x \left(\frac{5}{\sqrt{2}}\right)^2 - 1/2X \left(\frac{5}{\sqrt{2}}\right) X \sin 90$	
8 4	
$=\frac{25}{4}(1.57-1)$	
$= 6.25 \text{ x} .57 = 0.35625 \text{ cm}^2$	
Area of circle = $\pi r^2$	
$=\frac{22}{7} \times \left(\frac{5}{\sqrt{2}}\right)^2 = 3.14 \times 6.25$	
$= 19.62 \text{ cm}^2$	
Area of major segment	
= 19.62 – 0.36 = 19.20 cm	
Difference of segment = 19.26 – 0.36	
$= 18.9 \text{ cm}^2$	

## THE ASIAN SCHOOL, DEHRADUN Test Paper Session 2017-18

	CLASS 10 SUBJECT Mathematics CHAPTER- 13 Surface Area and Volume	<u>e</u>
Ans1	Radius of cylinder = $3x$ Radius of cone = $4x$ Height of cylinder = $2y$ Height of cone = $3y$	1
	Ratio of volume = 9:8	
Ans2	Volume of sphere = volume of wire $\frac{4\pi}{3}3^{3} = \pi \times 1^{2} \times h$ $h = 9 \times 4 = 36 \text{ cm}$	1
Ans3	1:8	1
Ans4	$I = \sqrt{h^2 + (R - r)^2}$ $I = \sqrt{6^2 + (20 - 12)^2} = 10 \text{cm}$	1
Ans5	h = 15 cm, r = 8 cm l = $\sqrt{n^2 + 1}$ l = $\sqrt{225 + 64}$ = 17 cm CSA = $\pi rl = \pi 8 \times 17 = 136\pi cm^2$	2
Ans6	Let height = h and radius = r , then $TSA = 2\pi r (2h) = 4\pi rh$	2
Ans7	$r = 5 \text{ cm}  \pi r^{2} + \pi r l = 90 \pi  5\pi (5 + l) = 90\pi  h = \sqrt{l^{2} - r^{2}}  h = \sqrt{169 - 25} = 12 \text{ cm}$	2
Ans8		2
	No. of lead shots = $\frac{vol \ cuboid}{vol \ of \ lead \ shot}$ = $\frac{lx \ bx}{\frac{4}{3}x \frac{22}{7}x \frac{0.3}{2}x \frac{0.3}{2}} = 1260$	
Ans9	$\pi r^{2}h = 567$ $r^{2}h = 567$ ; h=7cm h = 7 cm $r^{2} = 567/7$ , implies r = 9 cm	2
Ans10		2
Ans11	Volume of cone = volume of sphere $\frac{1}{3}\pi^2 h = \frac{4}{3}\pi r^3$ $6x6x24 = 4 R^3$ R = 6 cm	2

Ans12	I at wis the height rejead	2
AUSTZ	Let x is the height raised. $2 - 4 - 3$	2
	$\pi r^2 x = \frac{4}{3}\pi r^3$	
	$6^2 X x = \frac{4}{3} x 6^3$	
	x = 8 cm	
Ans13	d = 14  cm $r = 7  cm$	
7 (1510	$TSA = 2 (3\pi r^2)$	
	$= 6 \pi r^2$	
	$= 6\pi \times 7^2 = 294 \pi \text{ cm}^3$	
Ans14	Outer radius $R = 5$ cm, Inner radius $r = 3$ cm	
	$h = \frac{32}{3}$ cm	
	$\frac{3}{4} - (D^3 - u^3) - u^2 h$	
	$\frac{4}{3}\pi (R^{3} - r^{3}) = \pi r^{2}h$ $\frac{4}{3}(5^{3} - 3^{3}) = r X 32/3$	
	$\frac{4}{2}(5^3-3^3) = r \times \frac{32}{3}$	
	$\frac{3}{4} - \frac{r^2 x 3^2}{2}$	
	$\frac{4}{3} \times 98 = \frac{r^2 x 3^2}{3}$	
	$r^2 = \frac{196}{16}$	
	16	
	14 7	
	$\mathbf{r} = \frac{14}{4} = \frac{7}{2} \mathrm{cm}$	
	d = 7  cm	
Ans15		
	No. of spheres = $\frac{vol of cylinder}{vol of sphere}$	
	$\pi vol of sphere$ $\pi r^2 h$	
	$-\frac{4}{3}\pi r^3$ 22 r 45	
	$\frac{\frac{3}{22} \times 45}{\frac{4}{3} \times 3 \times 3 \times 3} = 5$	
	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	
Ans16		
	r = 8 cm	
	R = 20  cm	
	$V = 10459 \frac{3}{7}$	
	$V = 10437 \frac{1}{7}$	
	$V = \frac{73216}{7} \text{ cm}^3$	
	$\frac{1}{3}\pi(R^2 + r^2 + Rr) = \frac{73213}{7}$	
	3   7   7   7   7   7   7   7   7   7	
	$\frac{1}{3}x\frac{22}{7}h(400+64+160) = \frac{73216}{7}$	
	$h = \frac{73216 \times 3}{22 \times 624 208} = 16 \text{ cm}$	
	22x 624 208	
	Area of a sheet = $\pi r^2 + \pi rl$	
	$l = \sqrt{h^2 + (R - r)^2}$	
	$1 = \sqrt{16^2 + (12)^2} = 20$	
	Area $= \pi \times 64 + \pi \times 8 \times 20$	
	$= 224 \pi \text{cm}^2$	
	$Cost = 1.4 \text{ x} \frac{224 \text{ X} 22}{7} = \text{Rs. } 985.60$	
	$C_{001} = 1.7 \Lambda$ = $\Lambda_{00} = 100.00$	
1		

Amo 17	Volume of frustum	
Ans17		
	$=\frac{1}{3}\pi h (R^{2} + r^{2} + Rr)$	
	$=\frac{1}{3} \times \frac{22}{7} \times 30 (20^2 + 10^2 + 20 \times 10)$	
	$=\frac{220}{7} \times 700 = 22000 \text{ cm}^2$	
	= 22 litres	
	Cost of milk = $22 \times 25$	
Ame10	= Rs. 5550	
Ans18	D = 18  cm; $R = 9  cmInner radius = r cm$	
	$\frac{4}{3}\pi (R^3 - r^3) = \frac{1}{3}\pi r^2 h$	
	$4 (9^3 -r^3) = 14 \times 14 \times \frac{31}{7}$	
	$729 - r^3 = 217$	
	r = 7298 - 217 = 512 r = 8 cm	
	d = 16  cm	
Ans19	D = 2.4  cm	
	R = 1.2 cm	
	R-r = 0.2cm	
	R = 1  cm	
	$1 \text{ cm}^3 = 11.41 \text{ kg}$ Volume of Cu = $\pi h (R^2 - r^2)$	
	$=\frac{22}{7} \times 3.5 (1.2^2 - 1^2)$	
	= 11  x .21 = 2.31 cm <sup>3</sup>	
	- 2.51 cm	
Ans20	R = 8  cm	
	$1 \text{ cm}^3 = 7.5 \text{ gm}$ Volume = 1/3 \pi x 8 <sup>2</sup> x 36 + \pi x 8 <sup>2</sup> x 240	
	$= \pi \times 8^2 (12 + 240)$	
	$= 252^{36}x \ 64 \ x \ 22/7$	
	$= 50688 \text{ cm}^3$	
	$Cost = 50688 \times 7.5 = 380160 9 m$	
	= 380.16  kg	
Ans21	Similar to answer 17	
Ans22	Let height of cylinder is h and radius of each is r ; then $2 r = 2/3 x$ total height of object	
	2 r = 2/3 (h+r)	
	Br = 2h + 2r	
	$2\mathbf{r} = \mathbf{h}$	
	Volume = 2/3 + 2r	
	2r = h Volume = 2/3 $\pi$ r <sup>3</sup> + $\pi$ r <sup>2</sup> h	
	$\frac{1408}{21} = \pi r^2 \left(\frac{2r}{3} + h\right)$	
	$\frac{1}{21} = n \left( \frac{1}{3} + n \right)$	
	$\frac{1408}{21} = \frac{22}{7} X r^2 X \left(\frac{2r}{3} + \frac{2r}{1}\right)$	
	$\frac{1408}{21} = \frac{22}{7} \times \frac{8}{3} r^3$	
1	$r^3 = 8$	
	r-2	
	r = 2 h = 4 cm	

	<u>CLASS 10 SUBJECT Mathematics CHAPTER- 15 Probability</u>	
Ans1	В	1
Ans2	Ā	1
Ans3	<u>A</u>	
Ans4	D	
Ans5	B	
Ans6	a) $\frac{13+3}{72} = \frac{16}{72} = \frac{4}{12}$	
	52 52 13	
Amo7	$\frac{0}{52} \frac{52}{52} - \frac{1}{13}$	
Ans7	a) $\frac{3}{36} = \frac{1}{6}$	
	b) $\frac{36-6}{26} = \frac{30}{26} = \frac{5}{6}$	
Ans8	b) $\frac{52-8}{52} \frac{44}{52} = \frac{11}{13}$ a) $\frac{6}{36} = \frac{1}{6}$ b) $\frac{36-6}{36} = \frac{30}{36} = \frac{5}{6}$ $\frac{52-(26+2)}{52} = \frac{24}{52} = \frac{6}{13}$ Total out comes = 52 - (13+3) = 36 a) P(black fore card) = $\frac{3}{36} = \frac{1}{12}$	
Ans9	<u>52</u> <u>52</u> <u>13</u> Total out comes = 52 – (13+3) = 36	
ALISA	$P(\text{black for earl}) = \frac{3}{1}$	
	a) P(DIACK TOPE CAPID) = $\frac{36}{12} = \frac{12}{12}$	
	a) P( black fore card) = $\frac{3}{36} = \frac{1}{12}$ b) P (red card) = $\frac{35-2}{36} = \frac{24}{36} = \frac{2}{3}$	
Ans10	Let the no. of blue marbles be x	
	$\therefore$ the no. of green marbles = 24-x	
	P (green) = $\frac{24-x}{24} = \frac{2}{3}$	
	x = 8	
Ans11	No. of white balls = $x + 6$	
	Total balls $= 14 + 6 = 20$	
	P (white) = $\frac{x+b}{20} = \frac{1}{2}$	
	x = 4	
Ans12	Let no., of blue balls be x	
	Total balls = $x + 5$	
	P(blue) = (4 P(Red))	
	$\frac{x}{x+5} = 4\left(\frac{5}{x+5}\right)$	
	x = 20	
Ans13	a) x/18	
	b) No of red balls = $x + 2$	
	Total no. of balls = $18 + 2 = 20$	
	$\frac{x+2}{20} = \frac{9}{8} \times \frac{x}{18}$	
	x = 8	
Ans14	Total no. of balls = 5 + 6 + 7 = 18	
	a) 11/18	
	b) 7/18	
Ans15	c) 13/18	
	(HHH) , (HTN), (HHT), (HTT), (THH), (TNT), (TTH), (ITT) a) P (2H) = 3/8	
	b) P (at least 2H) = $4/8 = \frac{1}{2}$	
	c) P (at most 24) = $7/8$	
Ans16	Total out come = 52-3 = 49	
	a) 3/49	
	b) 3/49	
	c) 23/49	
Ans17	a) 10/49	
	b) 3/49	

## THE ASIAN SCHOOL, DEHRADUN Test Paper Session 2017-18 CLASS 10 SUBJECT Mathematics CHAPTER- 15 Probability

	c)	1 - 3/49 = 46/49	
Ans18	a)	8/19	
	b)	6/9	
Ans19	a)	5/17	
	b)	8/17	
	c)	13/17	
Ans20	,	4/52 = 1/13	
		26/52 = ½	
		52/8/ 52 = 44/52 = 11/13	
		2/51 = 1/26	
		1- (13+3/52) = 36/52 = 9/13	
Ans21	-	13/52 = ¼	
		12/52 = 3/13	
		1/52	
		16/52	
		16/52	
	,	4/13	
Ans22	-	20/100 = 1/5	
		50/100 = ½	
	c)	10/100 = 1/10	
Ans23	a)	5/17	
	b)	8/17	
	C)	13/17	