MATHEMATICS   CLASS – X   CHAPTER-1   REAL NUMBERS

Q1. The product of any three consecutive natural numbers is divisible by 6 (true or false)

Q2. The product of two irrational numbers is an irrational number (true/ false)

Q3. For what value of n, 2^n x 5^n ends in 5.

Q4. If a and b are relatively prime numbers, then what is their HCF?

Q5. If a = 2^3 x 3,b = 2x3x5, c = 3^n x 5 and LCM (a,b,c) = 2^3 x 3^2x 5, then n = ?
   a) 1   b) 2   c) 3   d) 4

Q6. If p and q are co=prime numbers, then p^2 and q^2 are :
   a) coprime   b) not coprime c) even   d) odd

Q7. The smallest number by which $\sqrt{27}$ should be multiplied so as to get a rational number :
   a) $\sqrt{27}$ b) $3\sqrt{27}$ c) $\sqrt{3}$ d) 3

Q8. The LCM and HCF of two rational numbers are equal, then the number must be:
   a) prime   b) co-prime   c) composite   d) equal

Q9. For some integer m, every even integer is of the form :
   a) m   b) m+1   c) 2m   d) 4

Q10. n^2-1 is divisible by 8, if n is :
   a) an integer   b) a natural number   c) an odd integer   d) an even integer

Q11. If two positive integers a and b are written as a = $x^3 y^2$ and b= xy^3; x, y are prime numbers, then HCF (a,b) is :
   a) xy   b) xy^2 c) x^3y^3 d) x^2y^2

Q12. The least number that is divisible by all the numbers form 1 to 10 (both inclusive) is :
   a) 10   b) 100   c) 504   d) 2520

Q13. Euclid's division lemma states that for two positive integers a and b, there exist unique integers q and r such that a = bq+r, where r must satisfy:
   a) 1<rb   b) 0<r≤ b   c) 0≤ r <b   d) 0 < r<b

Q14. The LCM of two numbers is 1200. Which of the following cannot be their HCF :
   a) 600   b) 500   c) 400   d) 200

Q15. The number of decimal places after which the decimal expansion of the rational number $\frac{23}{2^2 x5}$ will terminate is :
   a) 1   b) 2   c) 3   d) 4

Q16. $3.272\overline{7}$ is :
   a) an integer   b) a rational number   c) a natural number

Q17. Three bells tolls at intervals of 12 minutes 15 minutes and 18 minutes respectively. If they start tolling together after what time will they next toll together :
   a) 180 min   b) 36 min   c) 360min   d) 400min

Q18. Square of an odd integer is of the form :
   a) 4q+1   b) 4q+2   c) 4q+3   d) 4q

Q19. One of every three consecutive positive integers is divisible by :
   a) 2   b) 3   c) 4   d) 7

Q20. What can you say about the prime factorization of denominator of $27.\overline{142857}$
   a) Prime factorization of denominator is of the form $2^m x5^n$
   b) Prime factorization of denominator contains factors of only 2.
   c) Prime factorization of denomination contains factors of only 5.
   d) Prime factorization of denominator contains factors other than 2 or 5.

Q21. Give positive integers a and b there exist whole numbers q and r satisfying a = bq+r such that :
a≤ r <b   c) 0<r<b   c) 0≤ r≤ b   d) 0≤ r<b

Q1. The degree of the zero polynomial is :
a) zero   b) one   c) not defined   d) three

Q2. If α, β are the zero of the polynomial f(x) = x^2 + x+1 then $\frac{1}{\alpha} + \frac{1}{\beta}$ =
a) 1   b) -1   c) 0   d) None of these

Q3. If one root of the polynomial f(x) = $5x^2$+13x+K is reciprocal of other then the value of K is :
a) 0   b) 5   c) 1/6   d) 6

Q4. The number of polynomials have zeroes – 2 and 5 is :
a) 1   b) 2   c) 3   d) more than 3

Q5. For what value of K, 3 is a zero of the Polynomial $2x^2$ + x+K?
a) 15   b) -21   c) 21   d) 3

Q6. Quadratic polynomial, sum of whose zeroes is 2 $\sqrt{3}$ and their product is 2 :
a) f(x) = x^2 - $2\sqrt{3}$x-2   b) f(x) = x^2 $\sqrt{3}$x+2   c) f(x) = x^2 + $\sqrt{3}$x

Q7. If two zeroes of the polynomial f(x) = x^3- $4x^2$-3x+12 are $\sqrt{3}$ and -$\sqrt{3}$ then find its third zero :
a) $2\sqrt{3}$ b) -4   c) +4   d) 2

Q8. The zeroes of quadratic polynomial x^2+7x+12 :
a) -4,-3   b) -4,3   c) 0,4   d) 4,-3

Q9. If the graph of any polynomial intersect x axis at two points then no. of zeros of the polynomial are :
a) less than 2   b) more than 2   c) 2   d) None of these

Q10.If one zero of the quadratic polynomial x^2+3x+K is 2 then the value of K is :
a) 10   b) -10   c) 5   d) -5

Q11. What should be added to the polynomial x^2-5x+4 so that 3 is the zero of the resulting polynomial
a) 1   b) 2   c) 4   d) 5

Q12. A real number x is a zero of a polynomial f(x) if (x) =
a) 2   b) 0   c) -2   d) 4

Q13. If α, β, γ are the zeroes of a cubic polynomial f(x) = ax^3+ bx^2+ cx+d then : $\alpha + \beta + \gamma$ =
a) c/a   b) –d/a   c) –b/a   d) b/a

Q14. If f(x) = x^3 + x^2 – ax+b is divisible by x^2-x write the value of a and b.
a) a = 2, b = 0   b) a=0, b= 2   c) a=2, b=1   d) a=0, b=0

Q15. If sum of the squares of zeroes of the quadratic polynomial f(x) = x^2- 8x+k is 40 then value of K is :
a) -12   b) 12   c) 5   d) 3

Q16. If a quadratic polynomial f(x) is not factorizable into linear factors, then it has no real zero true or false.

Q17. The product of the zeroes of x^3+$4x^2$+x-6 is :
a) -4   b) 4   c) 6   d) -6

Q18. A polynomial of degree 0 is called :
a) zero polynomial   b) constant polynomial c) Linear polynomial   d) Quadratic polynomial

Q19. IF one zero of the quadratic polynomial f(x) = $4x^2$ – 8Kx-9 is negative of other the value of k :
a) 0   b) 2   c) -1   d) 8

Q20. If α are β are the zeroes of the polynomial f(x) = x^2-5x+K such that α- β= 1 then value of k is :
a) 6   b) -6   c) 4   d) -3

Q1. The value of K for which the system of equations x+2y = 5, 3x+ky+15=0 has no solution :
   a)   6   b) -6   c) 3/2   d) none of these

Q2. If the system of equations 2x+3y=5, 4x+ky=10 has infinitely many solutions then value of K is :
   a)   1   b) ½   c) 3   d) 6

Q3. The area of the Δ formed by the lines x=3, y=4 and x=y is :
   a)   ½ sq. unit   v) 1sq. unit   c) 2sq unit   d) 4 sq unit

Q4. For what value of K, do the equations 3x-y+8=0 and 6x-ky+16=0 represents coincidente lines :
   a)   1/2   b) -1/2   c) 2   d_ -2

Q5. Find the value of x and y if 2x+3y = 9 and 4x+16y=18
   a)   x =2, y = 3   b) infinitely many solutions   c) no solution   d) x=3, y=1

Q6. Solve for x and y if x+2y=4, 2x+4y=12
   a)   x=2, y=2   b) no solution   c) infinitely many solutions

Q7. Frame the linear equation for : The difference between two numbers is 26 and one number is three times the other :
   a)   x = 26+y, x=3y   b) x=26+y, y=3x c) x=26y, x=3y

Q8. Write the number of solution of the following pair of linear equations : x+2y – 8=0 2x+4y=16
   a)   one   b) two c) infinite   d) no solution

Q9. If the pair of lines are parallel then the pair has :
   a)   unique solution b) infinity may solutions   c) no solution

Q10. If x=a, and x=b is the solution of the system of equations x-y=2 and x+y=4 then value of a and b are respectively :
   a)   3and 2   b) 3adn 4   c) 5 and 3   d) -1 and -3

Q11. Aruna has only Rs 1 and Rs 2 coins with her. If the total number of coins that she has is 50 and the amount of money with her is Rs 75 then the number of Rs 1 and Rs 2 coins are respectively :
   a)   35 and 15   b) 35 and 20   c) 15 and 35   d) 25 and 25

Q12 In ΔABC < C=3, <B=2<A + 2<B . Then the three angles are :
   a)   20,40,120   b) 60,80,40   c) 30,20,130

Q13. The two solutiosn of x+2y =8 are :
   a) $\begin{matrix} x = 6 & y = 2 \\ x = 4 & y = 2 \end{matrix}$ b) $\begin{matrix} x = 4 & y = 4 \\ x = 8 & y = 0 \end{matrix}$ c) $\begin{matrix} x = 4 & y = 2 \\ x = 8 & y = 0 \end{matrix}$ d)

Q14. 2 tables area 3 chairs together costs Rs 2000 whereas 3 tables and 2 chairs together cost Rs 2500 find total cost of 1 table and 5 chains :
   a)   700,1000   b) 300,1000   c) 200, 500

Q15. Find the value of λ , $\frac{x}{10} + \frac{4}{5} = 1=0$ and $\frac{x}{8} + \frac{4}{6} = 15$ and y = λx+5
   a)   λ =-1/2   b) λ=2   c) λ=-3   d) λ= -1/3

Q1. If the equation $x^2 + 4x + k = 0$ has real and distinct roots, then :
  a) k<4   b) k>4   c) k≥ 4 d) k≤ 4

Q2. If the equation $9x^2 + 6kx + 4 = 0$ has equal roots, then the roots are both equal to :
  a) $\pm 2/3$ b) $\pm 3/2$ c) 0   d) ± 3

Q3. The positive value of k for which the equation x2 + kx+64=0 and x2- 8x+ k=0 will both have real roots, is:
  a) 4   b) 8   c)12   d) 16

Q4. If 2 is a root of the equation $x^2 + bx + 12 = 0$ and the equation $x^2 + bx + q = 0$ has equal roots, then q =
  a) 8   b) -8   c) 16   d) -16

Q5. If p and q are the toots of the equation $x^2 - px + q = 0$, then :
  a) p = 1, q = -2   b) b = 0, q = 1   c) p = -2, q=0   d) p = -2, q = 1

Q6. If the sum of roots of the equation $x^2 - x = \lambda(2x-1)$ is zero, then λ=
  a) -2   b) 2   c) -1/2   d) ½

Q7. The value of c for which the equation $ax^2 + 2bx + c = 0$ has equal roots is :
  a) b^2/a b) $b^2/4a$ c) a^2/b d) $a^2/4b$

Q8. If a and b are roots of the equation $x^2 + ax + b = 0$, then a + b = :
  a) a   b) b   c) -a   d) -b

Q9. A quadratic equation whose one root is 2 and the sum of whose roots is zero, is :
  a) $x^2 + 4 = 0$ b) $x^2 - 4 = 0$ c) $4x^2 - 1 = 0$ d) $x^2 - 2 = 0$

Q10. The values of k for which the quadratic equation $16x^2 + 4kx + 9 = 0$ has real and equal roots are :
  a) 6, -1/6   b) 36, -36   c) 6,-6   d) ¾, ¾

Q11. if one root of the equation $4x^2 - 2x + (\lambda-4) = 0$ be the reciprocal of the other, then λ= :
  a) 8   b) -8   c) 4   d) -4

Q12. If y = 1 is a common root of the equations $ay^2 + ay + 3 = 0$ and $y^2 + y + b = 0$, then ab equals :
  a) 3   b) -7/2   c) 6   d) -3

Q13. For what value of λ $x^2 + 4x + \lambda$ is a perfect square :
  a) 4   b) 6   c) -4   ed) 16

Q14. Predict the nature of roots of the equation $4x^2 - 2x - 9 = 0$
  a) Real and distinct   b) Real and equal   c) Unequal   d) imaginary

Q15. A takes 10 days less than the time taken by B to finish a piece of work. If both A and B together can finish the work in 12 days find time taken by B to finish the work :
    a) 15 days   b) 30 days   c) 12 days   d) 80 days

Q16. Find the roots of $x^2 - 4\sqrt{2}x + 6 = 0$
  a) $\sqrt{2}, 3\sqrt{2}$
  b) $-\sqrt{2}, 1\sqrt{2}$
  c) $0, \frac{1}{\sqrt{2}}$
  d) $-\sqrt{2}, \sqrt{2}$

Q17. The product of two consecutive positive integers is 306 from the quadratic equation to find the integers :
  a) $x^2 - x + 306$ b) $-x^2 + x + 306$ c) $-2x^2 - x + 306$

Q18. A train travels 360 km at uniform speed if the speed had been 5km/hr more, it would have taken 1 hour less for the same journey, form the quadratic equation to find the speed of the train :
  a) $x^2 - 5x - 1800$ b) $x^2 + 5x - 1800 = 0$ c) $5x^2 - x - 260 = 0$ d) $x^2 - 5x - 360 = 0$

Q19. If x = -a is the solution of $x^2 + 2ax - k = 0$ then the value of k is :
  a) +1/4   b) -1/4   c) 1/2   d) -1/2

Q20. The given equation $x^2 + ax - 4 = 0$ has real and distinct roots for what value of a :
  a) a=0   b) a∈R   c) a≠ 16   d) a>16

Q1. If the first term of an AP is p and its common difference is q find its 10th term :
   a) P+q   b) P+9q   c) P-q   d) P-9q

Q2. If 7th and 13th terms of an A.P be 34 and 64 respectively, then its 18th term is :
   a) 87   b) 88   c) 89   d) 90

Q3. If the sum of n terms of an A.P. is $3n^2$ +5n then which of its terms is 164?
   a) 26th b) 27th c) 28th d) none of these

Q4. If the sum of n terms of an A.P is $2n^2$ + 5n, then its nth term is :
   a) 4n-3   b) 3n-4   c) 4n+3   d) 3n+4

Q5. In an AP $S_p = q$, Sq= P where S_r denotes the sum of first r terms .Then, S_{p+q} is equal to :
   a) 0   b) –(p+q)   c) p+q   d) pq

Q6. If the first term of an A.P. is 2 and common difference is 4, then $S_{3n} : (S_{2n}-Sn)$ is :
   a) n   b) 3n   c) 3   d) none of these

Q7. The number of terms of the A.P. 3,7,11,15….. to be taken so that the sum is 406 is :
   a) 5   b) 10   c) 12   d) 14

Q8. Sum of n terms of the series $\sqrt{2} + \sqrt{8}+ \sqrt{18} + \sqrt{32}$ +……….is :
   a) $\frac{n(n+1)}{2}$ b) 2n(n+1)   c) $\frac{n(n+1)}{\sqrt{2}}$ d) 1

Q9. The 9th term o an A.P is 449 and 449th term is 9. The term which is equal to zero is:
   a) 501th b) 502th c) 508th d) None of these

Q10. The sum of first n odd natural numbers is :
   a) 2n-1   b) 2n+1   c) n^2 d) n^2-1

Q11. Two A.P.s have the same common difference. The first term of one of these is 8 and that of the other is 3.
The difference between their 30th terms is :
   a) 11   b) 3   c) 8   d) 5

Q12. If 18, a,b, -3 are in A.P., the a+b=
   a) 19   b) 7   c) 11   d) 15

Q13. The sum of n terms of two A.P.'s are in the ratio 5n+9: 9n+6. then, the ratio of their 18th term is :
   a) 179/321   b) 178/321   c) 175/321   d) 176/321

Q14. The sum of first 20 odd natural numbers is :
   a) 100   b) 210   c) 400   d) 420

Q15. The common difference of the A.P is $\frac{1}{2q}, \frac{1-2q}{2q}, \frac{1-4q}{2q}$, ……is
   a) -1   b) 1   c)q   d) 2q

Q16. If k, 2k +1 are three consecutive terms of an AP, the value of k is :
   a) -2   b) 3   c) -3   d) 6

Q17. The first three terms of an A.P. respectively are 3y-1 3y+5 and 5y+1. Then y equals :
   a) -3   b) 4   c) 5   d) 2

Q18. Solve (-4) + (-1) + 2+5+…… x = 437 then x =
   a) 15   b) 50   c) 45   d) 40

Q19. The first term of an AP is 5 last term is 45 and sum is 400, then the number of terms will be :
   a) n =18   b) n= 16   c) n = 10   d) n = 17

Q20. IF 2x, x+10, 3x+2 are in AP find value of x
   a) x =5   b) x =0   c) x = 6   d) x = 7

1. Find the area of the shaded region where ABC is a quadrant of radius 5cm and a semicircle is drawn with BC as diameter.

    A. 8.8 cm² B.   7.14cm²   C. 12.5cm² D. 19.64cm²
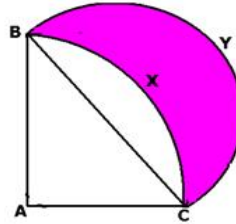
2. Area of the shaded portion in the following figure is equal to area of.

    A. sector OADBO – segment ADBA
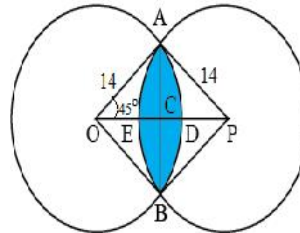
    B. segment AEBA
    C. segment ADBA
    D. segments ADBA and AEBA

3. Consider a point A on the circle of radius 7/π cm as shown in the figure. A ball on point A moves along the circumference until it reaches a point B. The tangent at B is parallel to the tangent at A. What is the distance travelled by the ball? (Consider the ball to be a point object)

Note: The point B in the diagram may not represent its actual position.

    A.   (A)   3.5cm (B)   7cm   (C)   14cm   (D) 28cm
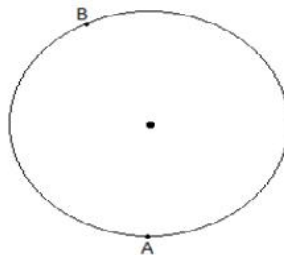
4. A pendulum swings through on angle of 30° and describes an arc 8.8 cm in length. Find the length of pendulum in cm.
            A. 16.8
            B. 17.3
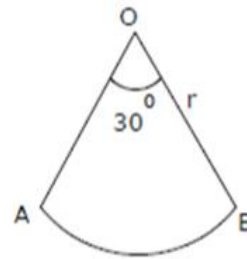
C. 15.1
D. 14.5

5. There is a circular swimming pool with center O. The radius of pool is 5 m. There are 2 points on the wall of the pool separated by distance of 7 m. These 2 points are named A and B. A rope is attached between A and B. This rope separates the shallow section of pool from deep section of pool. The shallow section is the smaller section. Which of following statements are true?

    A. The shallow section is an arc.
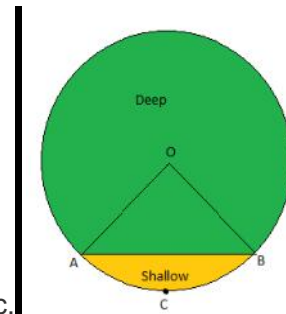
    B. The area of circle between OA and OB is an arc.
    C. The shallow section is a segment
    D. The shallow section is a sector

6. In the figure, the area of the portion in orange color is

    A. Area of outer circle + Area of inner circle
    B. Area of outer circle – Area of inner circle
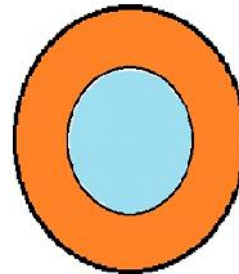
    C. Area of inner circle – Area of outer circle
    D. Area of outer circle

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7. Given below is a combination figure of square ABCD of side 26cm and four circles. Find the area of the shaded region.

    A. 530.64 cm^2
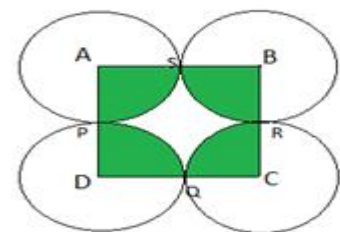
    B. 402.83cm^2
    C. 360cm^2
    D. 480.53cm^2

8. In the given figure, a circle is inscribed in a trapezium of height 14 cm and lengths of parallel sides are equal to 25 cm and 40 cm. What is the area of the shaded region?

A. 455 sq cm

B. 154 sq cm
C. 509 sq cm
D. 301 sq cm
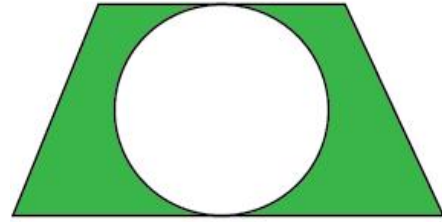
9. Radius of the outer circle is 18 cm and the radius of the inner circle is 7 cm. What is the area of the region between the outer and the inner circles?
   A. 361 πcm^2
   B. 133 cm^2
   C. 192.5 cm^2
   D. 275 πcm^2

10. A stadium is in circular shape. Within the stadium some areas have been allotted for a hockey court and a javelin range, as given in the figure. Assume the shape of the hockey court and the javelin range to be square and triangle, resp. The curators would like to accommodate a few more sports in the stadium. Help them by measuring the unallocated region within the stadium. (the radius of the stadium is 200 mts.)

A. 40000π m^2
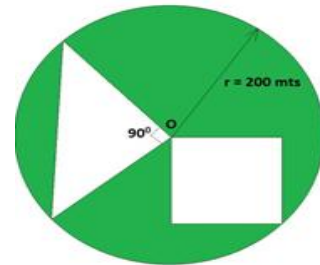
B. 40000(π−1) m^2
C. 20000(π−1) m^2
D. 20000π m^2

11. There is a circle of diameter 10 cm. A chord of length 6 cm is drawn inside the circle. What is the distance between the centre and this chord in cm?
    A. 1.5
    B. 2
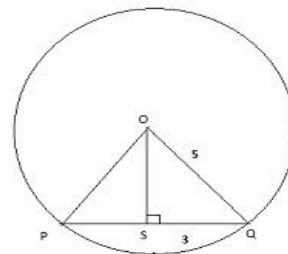
C. 4
D. 3

12. Find the area of the shaded region

A. 24 cm²
B. 25cm²
C. 28cm²
D. 21cm²
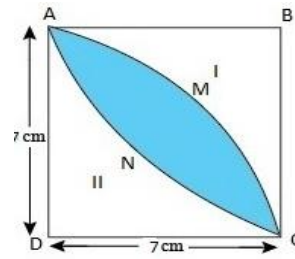
13. Find the area of the shaded region

A. 38cm²
B. 57cm²
C. 43cm²
D. 62cm²
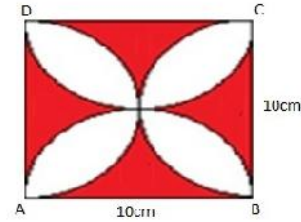
14.

14. If a square with side 'a' is inserted within a circle such that the corners coincide with the circumference of the circle with diameter'd'. Find the relation between 'a' and'd'.
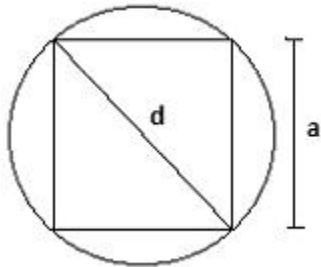

(A) $a = \dfrac{d}{\sqrt{2}}$
(B) a=d/2
(C) a=2d
(D) a=d

15. If an equilateral triangle is drawn inside a circle such that the circle is the circum-circle of the triangle, find the relation between the length of the triangle and the radius of the circle.
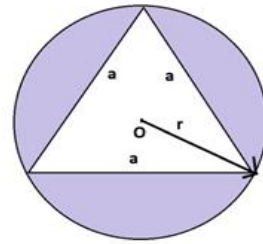
A. √3 × r
B. r3√
C. 3r
D. r/3

16. In the figure below, AB and CD are two diameters of a circle (with center O) perpendicular to each other and OD is the diameter of the smaller circle. If OA = 7 cm, find the area of the shaded region.

A. 65.5 cm^2
B. 66.5 cm^2
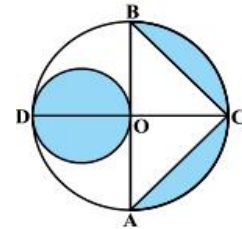
C. 67.5 cm^2
D. 68.5 cm^2

17. A wire is bent to form a circle of radius 7 cm. From the resulting shape, a chunk of the wire is cut off, and the wire cut off measures 4 cm in length. The length of the remaining wire is
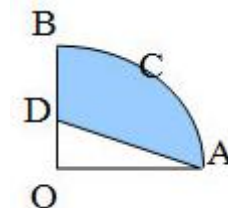A. 45cm
B. 50cm
C. 40cm
D. 42cm

18. If the perimeter and the area of a circle are numerically equal, then the radius of the circle is
A. 3 units
B. 4 units
C. π units
D. 2 units

19. In the given figure below, OACB is a quadrant of a circle. The radius OA = 3.5 cm, OD = 2 cm. Calculate the area of the shaded region.
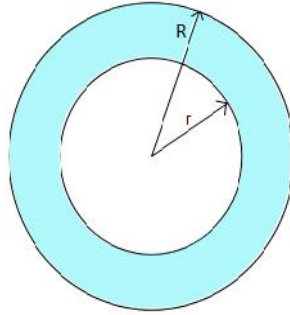
A. 5.125cm2

B. 6.5cm2
C. 7cm2
D. 6.125cm

20. The shaded area in the adjoining figure, between the circumferences of two concentric circles is 346.5 cm^2. The circumference of the inner circle is 88 cm. Calculate the radius of the outer circle. [Take π=22/7]

      A. 35 cm B.   32 cm C.   17.5cm D.   16.5cm

1.The lateral surface area of a right circular cone of height 28 cm and base radius 21 cm(in sq. cm) is:

(A) 2310   (B)   2110   (C)   1055   (D)   1155

3. An iron rod of diameter 1cm and length 8cm is drawn into a wire of length 18m of uniform thickness. Find the thickness of the wire?

(A) 0.09cm (B)   0.08cm (C)   0.06cm (D)   0.05cm

4. What do you understand by the quantity called 'area'?

A. It is the height of an object
B. It is the quantity that expresses the extent of a planar 2-D surface
C. It is the length of an object
D. It is the quantity of an object

5. A solid metallic sphere of diameter 21 cm is melted and recast into a number of smaller cones, of diameter 3.5 cm and height 3cm. The number of cones so formed is:

A. 254   (B)   504   (C)   540   (D)   405

6. How many dimensions are required to make a cuboid?

A. 3   (B)   1   (C)   15   (D)   100

7.There are 2 identical cubes each having a total surface area equal to 'A'. Let 'S' be the surface area of the solid obtained by joining these 2 cubes end to end. Which of the following statements is true?

A.   Cannot be determined (B)   S < 2A (C)   S > 2A (D)   S = 2A

8. The figure consists of 2 cylinders, the inner cylinder is a solid cylinder whose radius is r and the outer cylinder is a hollow cylinder whose radius is R and height is h, the volume of fluid it can hold is:

(A) $\pi r^2 h$ (B) $\pi R^2 h$ (C) $\pi(R^2-r^2)h$ (D) $\pi(R^2+r^2)h$
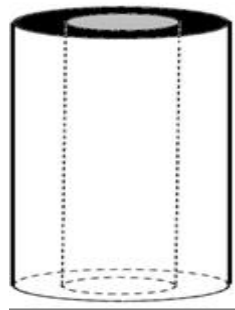

9. Find the volume of the figure.

A. (A)   3181.2 (B)   5162.5   (C) 7142.8 (D)   8527.2
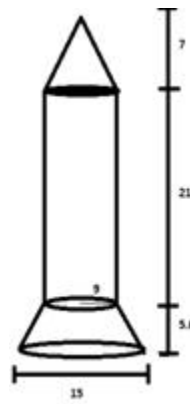
10. A piece of cloth is required to completely cover a solid object. The solid object is composed of a hemisphere and a cone surmounted on it. If the common radius is 7 m and height of the cone is 1 m, what is the area of cloth required?

(A) 262.39m²   (B)   463.39m²   (C)   662.39m²   (D)   563m²

11. An oil funnel made of tin sheet consists of a 10 cm long cylindrical portion attached to a frustum of a cone. If the total height is 22 cm, the diameter of the cylindrical portion is 8 cm and diameter of the top of the funnel is 18 cm, find the area of the tin sheet required to make the funnel.
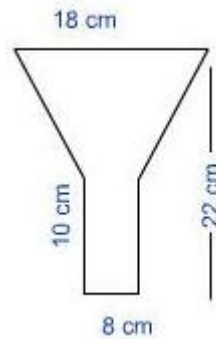

A. 525.25 cm²
B. 724.25!cm²
C. 781.86 cm²
D. 700 cm²

12. Ram has a semicircular disc. He rotates it about its diameter by 360 degrees. When he rotates the disc, a volume of air in his room gets swept. What is the name of the object/shape that exactly occupies this volume?

(A) Cylinder   (B)   Hemisphere   (C)   Sphere (D)   Cuboid

13. A bucket is in the form of a frustum of a cone, its depth is 15 cm and the diameters of the top and the bottom are 56 cm and 42 cm respectively. How many liters of water can the bucket hold?

(A)   28.49   (B) 7.5 (C)   2.5   (D)   10
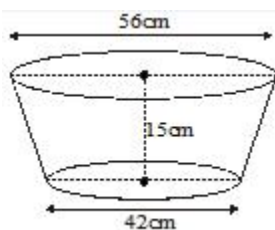
14. A 20 m deep well of diameter 7 m is dug and the earth taken out is evenly spread out to form a platform of 22 m by 14 m. Find the height of the platform (in m).

(A)   7.5   (B)   2.5   (C)   10   (D)   5

15. A cylindrical tank is filled by pumping water from a cuboidal tank of dimensions 200cm × 150cm × 95 cm. The radius of the cylindrical tank is 60cm and height is 95cm. Find the height (in m) of the water left in the cuboidal tank after the cylindrical tank is completely filled. (Take π = 3.14)

(A)   0.76 m (B)   0.69 m (C)   0.59 m (D)   0.45 m

16. A cylinder is molded into the shape of a sphere. Which of the following factors will be same for both the shapes?

(A)None of these (B)   Curved surface area   (C) Surface area (D) Volume

17. Water in a canal, 6 m wide and 1.5 m deep, is flowing with a speed of 10 km/h. How much area will it irrigate (in m^2) in 30 minutes, if 8 cm of standing water is needed?

(A) 256500 (B)   526500 (C)   625500 (D)   562500

18. The diameter of a sphere is 6 cm. It is melted and drawn into a wire of diameter 2 mm. The length of the wire is:

(A)   66m   (B)   36m   (C)   18m   (D)   12m

19. A cylinder and a cone are of the same base radius and same height. Find the ratio of the volumes of the cylinder of that of the cone.
   (a) 1 : 3   (b) 1 : 2   (c) 3 : 1   (d) 2 : 1
20. A toy is in the form of a cone mounted on a hemisphere of common base radius 7 cm. The total height of the toy is 31 cm. Find the total surface area of the toy.
   (a) 465   (b) 912   (c) 769   (d) 858

1. The range of the data 14,27,29,15,9,18,61,45 is
    (a)   61   (b)   52   (c)   47   (d)   53

2. Construction of a cumulative frequency table is useful determining the
    1. mean   2. Mode   3. Median   4. all of the above

3. The abscissa of the point of interaction of the 'less than type' and of the 'more than type' cumulative frequency curve of grouped data gives
    1. mode   2. Median   3. Mean   4. all of the above

4. What should be the modal class

class	0-5	5-10	10-15	15-20	20-25
frequency	10	15	12	20	9

5. The class mark of 120-150
    (a)   20   (b)   130   (c)   135   (d)   150

6. Consider the following frequency distribution

class	0-5	6-11	12-17	18-23	24-29
frequency	13	10	15	8	11

The upper limit of median class is
(a)   17   (b)   17.5   (c)   18   (d)   18.5

7. The mean of first five prime numbers is
    (a)   5   (b)   4.5   (c)   5.6   (d)   6.5

8. The mean of $x+3$, $x-2$ $x+5$, $x+7$ and $x+72$ is
    (a) $x+5$ (b) $x+2$ (c) $x+3$ (d) $x+7$

9. The mean of 10 observation is 42 . if each observation in the data is decreased by 12 , the new mean of the data is
    (a)   12   (b)   15   (c)   30   (d)   54

10. The arithmetic mean and mode of a data are 24 and 12 respectively , then median is
    a)   25   (b)   18   (c)   20   (d)   22

11. If mode of a series exceeds its mean by 12 then mode exceeds the median by
    a)   4   (b)   8   (c)   6   (d)   10

12. The mean of first n natural numbers
    a) $\frac{n+1}{2}$ (b) $\frac{n}{2}$ (c)   n   (d) n^2

13. Consider the following frequency distribution

class	65-85	85-105	105-125	125-145	145-165	165-185	185-205
frequency	4	5	13	20	14	7	4

The difference of the upper limit of the modal class and the lower limit of the modal class is
    (a)   0   (b)   19   (c)   20   (d)   38

14. The median of 10,12,,14,16,18,20 is
    (a)   12   (b)   15   (c)   16   (d)   14

15. The class mark of a class is 10 and its width is 6. The lower limit of the class is
    (a)   5   (b)   7   (c)   8   (d)   10

16. In a frequency distribution , the class width is 4 and the lower limit of the first class is 10 . if there are six classes, the upper limit of the last class is :
    (a)   22   (b)   26   (c)   30   (d)   34

17. The relation ship between mean , median and mode for a moderately skewed distribution is
    (a)   Mode= 2 Median -3 Mean (b) Mode= Median -2 Mean (c)   Mode= 2 Median - Mean
    (d)   Mode= 3 Median -2 Mean

18. If the mean of the following distribution is 2.6 the value of y is

Variable (x)	1	2	3	4	5
Frequency (y)	4	5	y	1	2

    (a)   3   (b)   8   (c)   13   (d)   24

19. If the mean of the first n natural umbers is $\frac{5n}{9}$ then n is

   (a)   5   (b)   4   (c)   9   (d)   10

20. Which of the following is not a measure of central tendency ?

   (a)   Mean   (b)   Mode   (c)   Median   (d)   standard deviation

1) The probability of a leap year selected at random contain 53 Sunday is:
(a) 53/ 366   (b) 1/7 (c) 2/7 (d) 53/365

(2) A bag contains 3 red and 2 blue marbles. A marble is drawn at random. The probability of drawing a black ball is :
(a) 3/5   (b) 2/5 (c) 0/5 (d) 1/5

(3) The probability that it will rain tomorrow is 0.85. What is the probability that it will not rain tomorrow
(a) 0.25   (b) 0.145   (c) 3/20   (d) none of these

(4) What is the probability that a number selected from the numbers (1, 2, 3,..........,15) is a multiple of 4?
(a) 1/5   (b) 4/5   (c) 2/15   (d) 1/3

(5) What are the total outcomes when we throw three coins?
(a) 4   (b) 5   (c) 8   (d) 7

(6) The probability that a prime number selected at random from the numbers (1,2,3, ...35) is :
(a) 12/35 (b) 11/35   (c) 13/35   (d) none of these

(7) The sum of the probability of an event and non event is :
(a) 2   (b) 1   (c) 0   (d) none of these.

(8) The following probabilities are given; choose the correct answer for that which is not possible.
(a) 0.15   (b) 2/7 (c) 7/5 (d) none of these.

(9) If three coins are tossed simultaneously, than the probability of getting at least two heads, is
(a) ¼   (b) 3/8 (c) ½   (d) 1/8

(10) A letter is chosen at random from the letters of the word �ASSASSINATION�. The probability that the letter chosen has vowel : (a) 6/13   (b) 7/13   (c) 1   (d) .none of these

11) Two different coins are tossed simultaneously. The probability of getting at least one head is:
(a) 1/ 4   (b) 1/8 (c) 3/4 (d) 7/8

(12) A number is selected from 1 to 30. The probability that it is a prime number:
(a) 2/3   (b) 1/6 (c) 1/3 (d) 11/30

(13)   A card is drawn
(a) 0.25   (b) 0.145   (c) 3/20   (d) none of these

(14) What is the probability that a number selected from the numbers (1, 2, 3,..........,15) is a multiple of 4?
(a) 1/5   (b) 4/5 (c) 2/15   (d) 1/3

(15) What are the total outcomes when we throw three coins?
(a) 4   (b) 5   (c) 8   (d) 7

(16) The probability that a prime number selected at random from the numbers (1,2,3, ...35) is :
(a) 12/35 (b) 11/35   (c) 13/35   (d) none of these

(17) The sum of the probability of an event and non event is :
(a) 2   (b) 1   (c) 0   (d) none of these.

(18) The following probabilities are given; choose the correct answer for that which is not possible.
(a) 0.15   (b) 2/7 (c) 7/5 (d) none of these.

(19) If three coins are tossed simultaneously, than the probability of getting at least two heads, is
(a) ¼   (b) 3/8 (c) ½   (d) 1/8

(20) A letter is chosen at random from the letters of the word �ASSASSINATION�. The probability that the letter chosen has:
(a) 6/13   (b) 7/13   (c) 1   (d) none of these.