1. The sum of the digits of a two digit number is 15. If the number formed by reversing the digits is less than the original number by 27. Find the original number.
2. Find three consecutive odd numbers whose sum is 147.
3. Rakhi's mother is four times as old as Rakhi. After 5 years, her mother will be three times as old as she will be then. Find their present ages.
4. Solve for x:

   $\frac{2x+7}{5} - \frac{3x+11}{2} = \frac{2x+8}{3} - 5$
5. Solve for y:

   $15(y - 4) - 2(y - 9) + 5 (y + 6) = 0$
6. Solve (a) $5x + \frac{7}{2} = \frac{3}{2}x - 14$ (b) $\frac{7}{y-12} = \frac{3}{y+4}$
7. Solve $\frac{x-2}{3} - \frac{x-3}{6} = 5 - \frac{x-3}{18}$
8. Sum of the digits of a two-digit number is 9. When the digits are interchanged and 18 is subtracted from the new number the resulting number is greater than the original number by 9. What is the two digit number?
9. Bansi has three times as many two -rupee coins as he has five rupee coins. If he has in all a sum of Rs 77, how many coins of each denomination does he have?

10. Find 5 rational numbers between $\frac{-3}{5}$ and $\frac{1}{4}$.
11. Find using distributive property: $\frac{9}{16} \times \frac{4}{12} + \frac{9}{16} \times \frac{-3}{9}$
12. Find the sum of the multiplicative inverse and the additive inverse of $\left(\frac{4}{7} \times \frac{28}{16}\right)$.
13. Verify that $\frac{2}{7} \times \left(\frac{-3}{5} + \frac{4}{10}\right) = \frac{2}{7} \times \frac{-3}{5} + \frac{2}{7} \times \frac{4}{10}$
14. There are 5665 men in an army contingent. These are to be arranged in a square formation. If 40 men are left after forming the square, how many men are standing in each row?
15. Find the smallest number that should be added to 2016 so that the sum obtained is a perfect square. Find the square root of the perfect square so obtained.
16. Find $\sqrt{11664}$ by prime factorisation method.
17. Find $\sqrt{0.0324}$ by long division method.
18. Find a Pythagorean triplet having 20 as one member of triplet.
19. How many natural numbers are there between 12^2 and 13^2.
20. Evaluate $116^2 - 115^2$.
21. Find cube root of 74088 by prime factorisation method.
22. A cubical hall can hold 74.088 m^3 of air. What is the height of the hall?

23. Find the value of the following expressions:

   (a) $\frac{1}{2^{-3}}$ (b) $\left(\frac{6}{7}\right)^{-8} \div \left(\frac{6}{7}\right)^{-5}$ (c) $\left[\left\{\left(-\frac{1}{2}\right)^2\right\}^{-2}\right]^{-1}$

(d) $\left(1^{-2} + 2^{-2} + 3^{-2}\right)^{0}$ **(e)** $\left(2^{-1} + 3^{-1}\right)^{-1} \div 4^{-1}$

24. Simplify for x : $3^{5x-1} \div 27 = 3^{-5}$

25. (a) Write the reciprocal of the rational number $\left(\frac{4}{3}\right)^{-5}$

(b) Express 0.0000015 and 35600000 in standard form.

(c) Write 2.57 $\times 10^{-5}$ **in usual form.**

26. Find cube root of 175616 by prime factorisation method.

27. By what number should 5400 be divided to make it a perfect cube? Find the cube root of the perfect cube so obtained.

28. Find out the cube root of 857375 through estimation.

29. Add 7xy + 5yz − 3zx, 4yz+9zx- 4xy, -3xz+5yz -2xy

30. Subtract $3l(\, l - 4m + 5n)\ from\ 4l(10n - 3m + 2l)$

31. Find product $\left(x^{2} - 2\right)\left(9x^{2} - 2x + 5\right)$

32. Simplify: $(a + b)(2a - 3b + c) - (2a - 3b)c$

33. Evaluate by suitable algebraic identity: (a) 98× 102 (b) $99^{2} - 98^{2}$

34. Factorise:

1. $z^{2} - 4z - 12$ **2.** $x^{2} - 2xy + y^{2} - z^{2}$

3. $25\, a^{2} - 4b^{2} + 28bc - 49c^{2}$ **4.** $16x^{5} - 144x^{3}$

5. $a^{4}b^{4} - c^{4}$ **6.** $4x^{2} - 16x + 15$

7. $p^{2}q - pr^{2} - pq + r^{2}$ **8.** $x^{4} - (x - z)^{4}$

36. Divide : $39y^{3}(50y^{2} - 98) \div 26y^{2}(5y + 7)$

37. The number of minutes spent online by students during one day are as listed below:
15,32,8,5,0,35,19,22,45,60,25,38,10,30,0,32,44,25,23,18
(a) Make a frequency table using class intervals 0-10, 10-20...
(b) Make a histogram of the given data.

38. The following table shows the expenditure by Indian Government in various sectors in the year 2015:

Income in sectors	Agriculture	Transportation	Education	Entertainment
Amount (in crores)	2000	1500	2500	1500

Construct a pie- chart.

39. A card is drawn at random from a pack of 52 playing cards. Find the probability of getting
(a) a picture card (b) a red ace

40. A polyhedron has 6 faces and 12 edges. How many vertices does it have?
41. Verify Euler's formula for (i) a square pyramid (ii) a triangular prism.
42. Is it possible to have a polyhedron with 7 faces, 8 vertices and 15 edges? Give reason for your answer.

43. WRITE FORMULAE

SHAPE	LSA	TSA	VOLUME
CUBOID			
CUBE			
CYLINDER			

44. WRITE FORMULAE
    (A) Basic formula of volume=
    (B) Basic formula of LSA =
    (C) Area of trapezium=
    (D) Circumference of circle=
    (E) Area of circle=
    (F) Area of triangle=
    (G) Area of equilateral triangle=
    (H) Area of rhombus when diagonals given=
45. The cost of a pair of shoes was Rs. 700. The sales tax charged was 10%. Find the bill amount.
46. A fan is marked at Rs 15600 and it is available for Rs 12480. Find the discount given and discount percent.
47. What amount has to be paid on a loan of Rs 12000 for 3 years at 10% per annum compounded annually?
48. A shopkeeper purchased 200 bulbs for Rs.10 each. However 5 bulbs were fused and had to be thrown away. The remaining bulbs were sold at Rs 12 each. Find the gain or loss per cent.
49. Find the compound interest on Rs 1000 at the rate of 10% p.a. for 18 months when the interest is calculated half yearly.
50. The value of a car depreciates at the rate of 10% per year. If its present value is Rs 65,000, what will be its value after 3 years?