

# Self Assessment Paper

## Section 'A'

Questions 1 to 10 carry 1 mark each. Each question has four alternate answers of which only one is correct. Choose the correct answer.

1. Which of the following is irrational ?

- (a) 0.14  
 (b)  $0.14\overline{16}$   
 (c)  $0.\overline{2345}$   
 (d) 0.4014001400014...

OR

If  $m = x^a, n = x^b, p = x^c$ , then the value of  $(m^{b-c} \cdot n^{c-a} \cdot p^{a-b})$  is

- (a) 0  
 (b) 1  
 (c) -1  
 (d) None of these

**AI** 2.  $x + 1$  is a factor of the polynomial

- (a)  $x^3 + x^2 - x + 1$ .  
 (b)  $x^3 + x^2 + x + 1$ .  
 (c)  $x^4 + x^3 + x^2 + 1$ .  
 (d)  $x^4 + 3x^3 + 3x^2 + x + 1$ .

OR

The coefficient of  $x$  in the expansion of  $(x + 3)^3$  is

- (a) 1  
 (b) 9  
 (c) 18  
 (d) 27

3. Abscissa and ordinate of any point is (0, 0) at

- (a) Origin  
 (b) I quadrant  
 (c) II quadrant  
 (d) IV quadrant

4. Which of the following ordered pairs is a solution of the linear equation,  $4x - 3y + 1 = 0$ ?

- (a) (2, 1)  
 (b) (5, 3)  
 (c) (3, 2)  
 (d) (5, 7)

OR

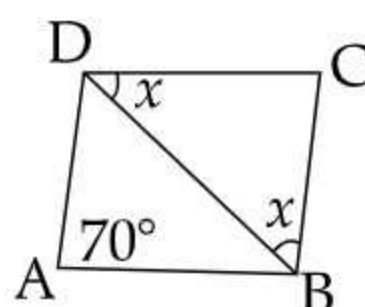
Straight line passing through the points  $(-1, 1), (0, 0)$  and  $(1, -1)$  has equation:

- (a)  $y = x$   
 (b)  $x + y = 0$   
 (c)  $y = 2x$   
 (d)  $2 + 3y = 7x$

5. In an isosceles triangle, each of the base angles is double the vertical. Then, the measure of the vertical angle is

- (a)  $35^\circ$   
 (b)  $36^\circ$   
 (c)  $45^\circ$   
 (d) None of these

6. ABCD is a rhombus. If  $\angle A = 70^\circ$  then  $\angle CDB =$



- (a)  $65^\circ$   
 (b)  $55^\circ$   
 (c)  $35^\circ$   
 (d)  $45^\circ$

7. If the areas of three adjacent faces of a cuboid are  $x, y, z$  respectively, then the volume of the cuboid is
- (a)  $xyz$  (b)  $2xyz$   
 (c)  $\sqrt{xyz}$  (d)  $3\sqrt{xyz}$ .
8. In a cricket match, a batsman hits a boundary 8 times out of 40 balls he plays. Then, the probability that he did not hit boundary is
- (a)  $\frac{8}{40}$  (b)  $\frac{4}{5}$   
 (c)  $\frac{4}{21}$  (d) None of these
9. If a square and a rhombus are on the same base and between the same parallels, then the ratio of the areas of the square and rhombus is
- (a) greater than 1 (b) 1  
 (c) 1 : 2 (d) 1 : 4
10. The distance of a chord 8 cm long from the centre of a circle of radius 5 cm is
- (a) 4 cm (b) 3 cm  
 (c) 2 cm (d) 9 cm

**Questions 11 to 15 carry one mark each. State true or false**

11. The product of two rational numbers is always rational.  
 12. The sum of interior angles of a kite is  $360^\circ$ .

**OR**

Every square is a rectangle

13. The area of an equilateral triangle with semi - perimeter 12 cm is  $4\sqrt{3}$  cm<sup>2</sup>.  
 14. Euclid's fourth axiom says that everything equals itself.  
 [AI] 15. PQRS is a rectangle inscribed in a quadrant of a circle of radius 13 cm. A is any point on PQ. If PS = 5 cm, then ar ( $\Delta RPS$ ) = 30 cm<sup>2</sup>.

**Questions 16 to 20 : Carry one mark each.**

16. Write the zeroes of the polynomial  $p(x) = x(x - 2)(x - 3)$ .

**OR**

Find the zeros of the polynomial :

$$p(x) = (x - 2)^2 - (x + 2)^2.$$

17. An exterior angle of a triangle is  $80^\circ$  and two interior opposite angles are equal. What will be the measure of each ?  
 [AI] 18. Find the surface area of the cuboid whose length is 16 cm, breadth is 15 cm and height is 8.5 cm.

**OR**

The circumference of the base of a 12 m wooden solid cone is 44m. Find the volume.

19. D, E, F are the mid-points of sides BC, CA and AB of  $\Delta ABC$ . If perimeter of  $\Delta ABC$  is 12.8 cm, then find perimeter of  $\Delta DEF$   
 20. If  $a, b$  and  $c$  are the sides of a triangle, and  $s =$  semi-perimeter, then write the formula for area of triangle.

## Section 'B'

Question number 21 to 26 carry 2 marks each.

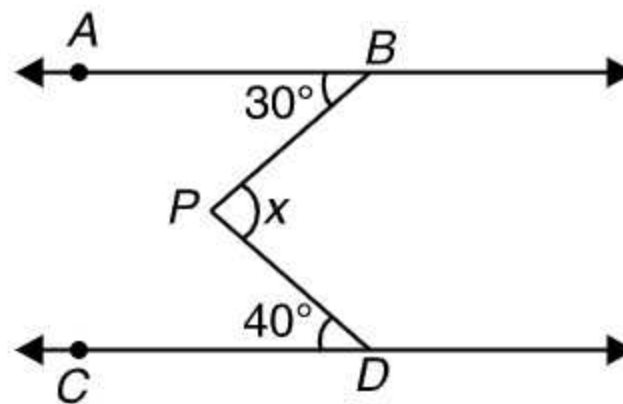
21. As shown in Fig., if  $AC = BD$ , then prove that  $AB = CD$ .



22. If  $(3x - 15^\circ)$  and  $(x + 5^\circ)$  are complementary angles, find the angles.

OR

In the figure  $AB \parallel CD$ ,  $\angle ABP = 30^\circ$  and  $\angle CDP = 40^\circ$ , find  $x$ .

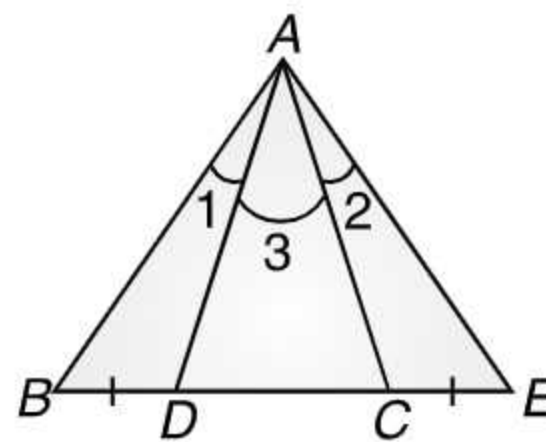


23. Simplify  $\frac{3^n \times 9^{n+1}}{3^{n-1} \times 9^{n-1}}$

OR

Simplify :  $2\sqrt{50} \times 3\sqrt{32} \times 4\sqrt{18}$ .

24. In figure  $\angle B = \angle E$ ,  $BD = CE$  and  $\angle 1 = \angle 2$ . Show  $\triangle ABC \cong \triangle AED$ .



25. How much ice-cream can be put into a cone with base radius 3.5 cm and height 12 cm ?

26. Arithmetic mean of terms 21, 16, 24,  $x$ , 29, 15 is 23 Find the value of  $x$ .

## Section 'C'

Question 27 to 34 carry 3 marks each

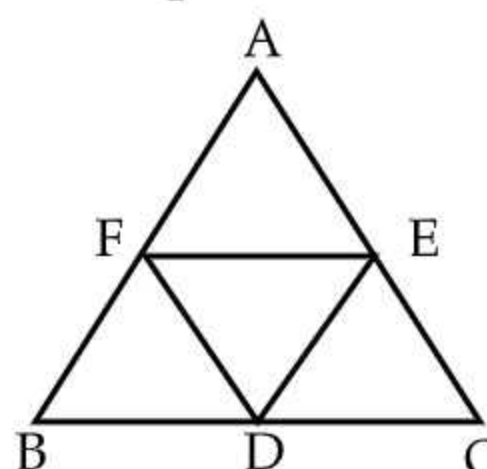
27. Evaluate  $111^3$  using a suitable identity.

28. Find the perimeter of an isosceles triangle, if its base is 30 cm and area is  $120 \text{ cm}^2$ .

OR

29. A triangle and a parallelogram have the same base and the same area. If the sides of the triangle are 13 cm, 14 cm and 15 cm and the parallelogram stands on the base 14 cm, then find the height of the parallelogram

29. In Fig. D, E and F are, respectively the mid-points of the sides BC, CA and AB of an equilateral triangle ABC. Show that  $\triangle DEF$  is also an equilateral triangle.



**AI** 30. Given the equation  $2x + y = 7$ .

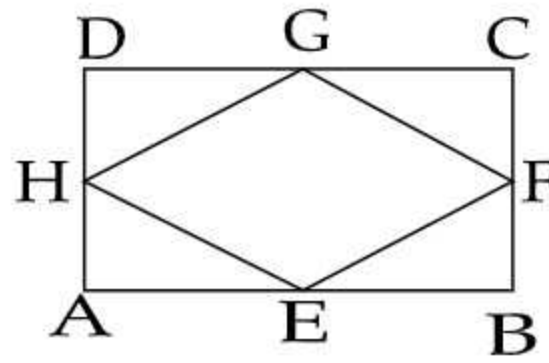
(i) What is the value of  $x$ , when the value of  $y$  is 3?

(ii) What is the value of  $y$ , when the value of  $x$  is 4?

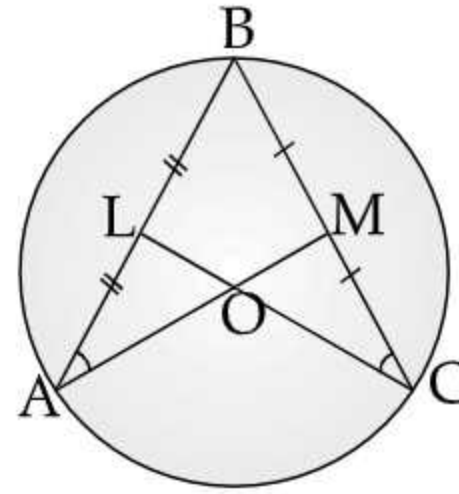
(iii) Find one more solution for the above equation.

31. Draw the quadrilateral ABCD whose vertices are A(0, 0), B(5, 0), C(3, 2) and D(0, 2).

32. ABCD is a rectangle. E, F, G and H are mid-point of sides AB, BC, CD and DA respectively. If ar (EFGH) =  $16 \text{ cm}^2$ , find ar (ABCD).

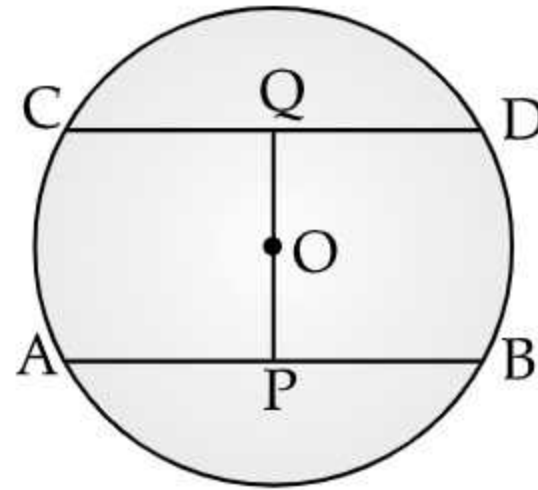


33. In the given figure, O is the centre of the circle and L and M are the mid-points of AB and CB respectively. If  $\angle OAB = \angle OCB$ , prove that  $BL = BM$ .



OR

In the given figure, AB and CD are two parallel chords of a circle with centre O and radius 5 cm such that  $AB = 8 \text{ cm}$  and  $CD = 6 \text{ cm}$ . If OP is perpendicular to AB and OQ is perpendicular to CD, determine the length of PQ.



**AI** 34. On a busy road, following data was observed about cars passing through it and number of occupants :

Number of occupants	1	2	3	4	5
Number of cars	29	26	23	17	5

Find the chance that it has :

- (i) exactly 5 occupants.
- (ii) more than 2 occupants.
- (iii) less than 5 occupants.

OR

In a one-day cricket Match, Sachin played 40 balls and hit 12 sixes and Saurav played 30 balls and hit 9 fours. Find the probability that Sachin will hit a six in the next ball and also find the probability that Saurav will not hit a four in the next ball.

## Section 'D'

Questions 35 to 40 carry 4 marks each

35. If  $x = \frac{1}{\sqrt{a} - \sqrt{b}}$ , then prove that  $(a-b)^2 x^2 + (a-b)x - (a+b) = \sqrt{a} + \sqrt{b} + 2\sqrt{a}\sqrt{b}$

**AI** 36. If  $x^2 + \frac{1}{x^2} = 7$ , Find the value of  $x^3 + \frac{1}{x^3}$ , taking only the positive value of  $x + \frac{1}{x}$ .

OR

Factorize :  $9x^3 - 3x^2 - 5x - 1$ .

37. Give the geometric representation of  $y = 4$  as an equation in :

(i) One Variable

(ii) Two Variables

**AI** 38. The following table gives the life time of 400 neon lamps :

Life Time (in hours)	Number of Lamps
300 - 400	14
400 - 500	56
500 - 600	60
600 - 700	86
700 - 800	74
800 - 900	62
900 - 1000	48

(i) Represent the given information with help of histogram.

(ii) How many lamps have life time of more than 700 hours ?

39. Construct a triangle with base of length 7.5 cm, the difference of the other two sides 2.5 cm and one base angle of  $45^\circ$ . Justify the construction.

40. Curved surface of cylindrical reservoir 12 m deep is plastered from inside with concrete mixture at rate of ₹ 15 per  $m^2$ . If the total payment made is of ₹ 5652, then find the capacity of this reservoir in litres.