

MATHS OLYMPIAD

PRACTICE BOOK



GRADE
9

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Preface

Our education system effectively provides an introduction to the concepts of Math and Science and helps us understand the underlying concepts. But in its overly generalized approach, which aims to enlighten and test all students of varying caliber and interests, it leaves the exploration of application of all these concepts completely on the students.

This workbook is designed to enable students to explore Maths effectively. Designed in accordance with the requirements of the Maths Olympiads, the workbook is an efficient tool to achieve comprehensive success at the **ISFO – Maths Olympiad**.

The main aim of this workbook is to assist students in developing and improving their ability to solve problems.

Each chapter of the book consists of 3 sets of questions.

- **Section A** (Mathematical Reasoning) : This section is created to test the knowledge of mathematical concepts and topic pertaining to the respective grades.
- **Section B** (Everyday Maths) : This section deals with the application.
- **Section C** (BrainBox) : Questions to prepare students with HOTS (Higher Order Thinking Skills) based on the syllabus provided.

Logical Reasoning section is provided to equip students with verbal and non-verbal analysis and reasoning skills.

Sample Test Papers and Answer keys have been provided to accelerate the learning process.





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SECTION - A : MATHEMATICAL REASONING

1. $1.272727 \dots = 1.\overline{27}$ can be expressed in the form $\frac{p}{q}$ as
- $\frac{24}{21}$
 - $\frac{14}{11}$
 - $\frac{23}{21}$
 - $\frac{12}{11}$
2. The value of $\frac{1}{4}$ of 16^{30} is
- 4×16^{29}
 - 2×16^{28}
 - 2×10^{29}
 - 2×10^{30}
3. Which of following statements is correct?
- Every natural number is a whole number.
 - Every integer is a whole number.
 - Every rational number is a whole number.
 - Every rational number is an integer.
4. Which of following numbers has the terminating decimal representation?
- $\frac{2}{11}$
 - $\frac{16}{45}$
 - $\frac{8}{3}$
 - $\frac{17}{8}$
5. The decimal form of $\frac{16}{45}$ is
- $0.\overline{35}$
 - $0.\overline{45}$
 - $0.\overline{46}$
 - $0.\overline{47}$
6. If $(x - 1)^4 = 16$, then what is the value of $(x + 2)^2$?
- 24
 - 25
 - 26
 - 16

7. The value of $\left(\frac{81}{625}\right)^{\frac{3}{4}} \div (27)^{\frac{-2}{3}} \times (125)^{\frac{1}{3}}$ is
- 625
 - $\frac{243}{25}$
 - 27
 - $\frac{27}{25}$
8. If $8^{x+1} = 64$, then the value of 3^{2x+1} is
- 27
 - 3
 - 1
 - 9
9. If $9^{x+2} = 720 + 9^x$, then the value of x is
- 2
 - 1
 - 4
 - 3
10. $\frac{1}{3-\sqrt{8}} - \frac{1}{\sqrt{8}-\sqrt{7}} + \frac{1}{\sqrt{7}-\sqrt{6}} - \frac{1}{\sqrt{6}-\sqrt{5}} + \frac{1}{\sqrt{5}-2}$ is equal to
- 3
 - 5
 - 6
 - 7
11. If $x = \frac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}}$ and $y = \frac{\sqrt{5}-\sqrt{3}}{\sqrt{5}+\sqrt{3}}$, then the value of $x^2 + y^2 - 3xy$ is
- 54
 - 56
 - 59
 - 60

12. If $\frac{\sqrt{5} + \sqrt{3}}{\sqrt{5} - \sqrt{3}} = a + b\sqrt{15}$, then the value of

a and b are _____ and _____.

- a. 1, 2
- b. -2, 1
- c. 1, -2
- d. 4, 1

13. If $x = 1 - \sqrt{2}$, the value of $(x - \frac{1}{x})^3$ is

- a. 10
- b. 36
- c. 8
- d. 20

14. Simplify: $\frac{\sqrt[4]{82944}}{\sqrt[4]{4}}$.

- a. 14
- b. 27
- c. 12
- d. 11

15. Which of the following rational numbers

lies between $\frac{-2}{3}$ and $\frac{1}{4}$?

- a. $\frac{-4}{5}$
- b. $\frac{1}{8}$
- c. $\frac{-5}{24}$
- d. $\frac{-2}{5}$

16. The descending order of $\sqrt[4]{6}, \sqrt{3}, \sqrt[3]{4}$ is

- a. $\sqrt{3}, \sqrt[3]{4}, \sqrt[4]{6}$
- b. $\sqrt[4]{6}, \sqrt[3]{4}, \sqrt{3}$
- c. $\sqrt{3}, \sqrt[4]{6}, \sqrt[3]{4}$
- d. $\sqrt[3]{4}, \sqrt[4]{6}, \sqrt{3}$

17. The greater number between $\sqrt{20} - \sqrt{13}$ and $\sqrt{21} - \sqrt{15}$ is

- a. $\sqrt{20} - \sqrt{13}$
- b. $\sqrt{21} - \sqrt{15}$
- c. Both are equal
- d. Can't be compared

18. The value of $(256)^{0.16} \times (256)^{0.09}$ is

- a. 1
- b. 4
- c. 2
- d. 8

19. Simplify: $\frac{\sqrt[3]{xy^2}}{x^2y}$

- a. x^3y^6
- b. x^6y^6
- c. $x^{\frac{-5}{3}}y^{\frac{-1}{3}}$
- d. $x^{\frac{5}{3}}y^{\frac{1}{3}}$

20. The value of $\sqrt{3-2\sqrt{2}}$ is

- a. $\sqrt{2}-1$
- b. $\sqrt{2}+1$
- c. $\sqrt{2}-\sqrt{3}$
- d. $\sqrt{3}+\sqrt{2}$

SECTION - B : EVERYDAY MATHS

21. If $\sqrt{13-a\sqrt{10}} = \sqrt{8} + \sqrt{5}$, then the value of a is

- a. 4
- b. -4
- c. 3
- d. 5

22. For some integer m, every even integer is of the form

- a. m
- b. m + 1
- c. 2m
- d. None of these

23. Euclid division Lemma states that for positive integers a and b, there exist unique integers q and r such that $a = bq + r$, where r must satisfy

- a. $0 < r < b$
- b. $0 < r < b$
- c. $0 < r \leq b$
- d. $0 \leq r < b$

24. The number of prime factors of $(3 \times 5)^{12} (2 \times 7)^{10} (10)^{25}$ is

- a. 47
- b. 94
- c. 60
- d. 72

25. The value of $\log_2(64)$ is

- a. 6
- b. 7
- c. 8
- d. 2

SECTION - C : BRAINBOX

26. Simplify: $\left(\frac{\sqrt{2}}{5}\right)^8 \div \left(\frac{\sqrt{2}}{5}\right)^{13}$

- a. $\frac{31}{25}$
- b. $\frac{3125}{4\sqrt{2}}$
- c. $\frac{4\sqrt{2}}{3125}$
- d. $4\sqrt{2}$

27. Read the statements given below.

Statement 1: Every real number is either a rational or an irrational.

Statement 2: π is a rational number.

Which of the following is the correct option?

- a. Statement 1 and Statement 2 both are false.
- b. Statement 1 and Statement 2 both are true.
- c. Statement 1 is false and Statement 2 is true.
- d. Statement 1 is true and Statement 2 is false.

28. Match the following:

Column I

Column II

(P) $\frac{x^{a(b-c)}}{x^{b(a-c)}} \div \left(\frac{x^b}{x^a}\right)^c$

(i) $\frac{1}{2}$

(Q) $\sqrt{(27)^{\frac{2}{3}}}$

(ii) $\frac{125}{512}$

(R) $\left(\frac{64}{25}\right)^{\frac{-3}{2}}$

(iii) 1

(S) $\frac{16 \times 2^{n+1} - 4 \times 2^n}{16 \times 2^{n+2} - 2 \times 2^{n+2}}$

(iv) 3

a. $P \rightarrow$ (iii), $Q \rightarrow$ (iv), $R \rightarrow$ (ii), $S \rightarrow$ (i)

b. $P \rightarrow$ (iii), $Q \rightarrow$ (i), $R \rightarrow$ (iv), $S \rightarrow$ (ii)

c. $P \rightarrow$ (ii), $Q \rightarrow$ (i), $R \rightarrow$ (iv), $S \rightarrow$ (iii)

d. $P \rightarrow$ (iii), $Q \rightarrow$ (ii), $R \rightarrow$ (i), $S \rightarrow$ (iv)

29. If $\frac{x^4}{x^{2.5}} = 64x^{-1.5}$, then the value of x is

- a. 65
- b. 4
- c. 32
- d. 68

30. If $0 < x < y$, which of the following statements is true?

- a. $\sqrt{y} - \sqrt{x} = \sqrt{y-x}$
- b. $y\sqrt{x} = x\sqrt{y}$
- c. $\sqrt{xy} = \sqrt{x}\sqrt{y}$
- d. $\sqrt{y} + \sqrt{x} = \sqrt{2y}$

Darken your choice with HB pencil

1. a b c d

2. a b c d

3. a b c d

4. a b c d

5. a b c d

6. a b c d

7. a b c d

8. a b c d

9. a b c d

10. a b c d

11. a b c d

12. a b c d

13. a b c d

14. a b c d

15. a b c d

16. a b c d

17. a b c d

18. a b c d

19. a b c d

20. a b c d

21. a b c d

22. a b c d

23. a b c d

24. a b c d

25. a b c d

26. a b c d

27. a b c d

28. a b c d

29. a b c d

30. a b c d

SECTION - A : MATHEMATICAL REASONING

1. If $x - y = 4$ and $xy = 21$, then the value of $x^3 - y^3$ is
 - a. 322
 - b. 320
 - c. 325
 - d. 316
2. The value of x for $\sqrt{2x+9} + x = 13$ is
 - a. 8
 - b. 16
 - c. 20
 - d. 6
3. If $a^2 + b^2 + c^2 - ab - bc - ca = 0$, then which of the following is the correct relationship between a , b and c ?
 - a. $a = b = c$
 - b. $a + b = c$
 - c. $b + c = a$
 - d. $a + c = b$
4. If $a - b = 0$, then the value of $a^3 - b^3$ is
 - a. 1
 - b. 0
 - c. 2
 - d. 3
5. The coefficient of x^3 in $2x^3 + \pi x^2 + 2$ is
 - a. 2
 - b. 1
 - c. π
 - d. 0
6. Which of the following is not a polynomial?
 - a. $4x^2 + 2x - 1$
 - b. $y + \frac{3}{\sqrt{y}}$
 - c. $x^3 - 1$
 - d. $y^2 + 5y + 1$
7. The number of zeros of $x^2 + 4x + 4$ is
 - a. 3
 - b. 4
 - c. 2
 - d. 5
8. If $4 + 5 - 9 = 0$, then the value of $(4)^3 + (5)^3 - (9)^3$ is
 - a. -540
 - b. 540
 - c. 720
 - d. -720
9. The degree of the polynomial $p(x) = x^2 + 1$ is
 - a. 0
 - b. 1
 - c. 2
 - d. 3
10. If $(x + 2)$ is a factor of $x^3 - 2ax^2 + 16$, then the value of a is
 - a. 1
 - b. 2
 - c. 3
 - d. 4
11. If $(x - y)$ is a factor of $x^2 + y - xy - x$, then its other factor is
 - a. $(x + 1)$
 - b. $(x - 1)$
 - c. $(x + 2)$
 - d. $(x - 2)$
12. If $81a^2 - b = \left(9a + \frac{1}{4}\right)\left(9a - \frac{1}{4}\right)$, then the value of b is
 - a. $\frac{1}{4}$
 - b. $\frac{1}{8}$
 - c. $\frac{1}{16}$
 - d. $\frac{1}{2}$
13. On dividing $x^3 + 3x^2 + 3x + 1$ by $(x - 1)$, the remainder we get is
 - a. 12
 - b. 3
 - c. 4
 - d. 8

14. $(x + 1)$ is a factor of $x^n + 1$ only if
- n is an odd integer.
 - n is an even integer.
 - n is an negative integer.
 - n is an positive integer.
15. If $x - 1$ is a factor of polynomial $4x^2 + kx$, then the value of k is
- 4
 - 3
 - 2
 - 0
16. If $x^2 - 1$ is factor of $Ax^4 + Cx^3 + Dx^2 + Fx + G$ then which of the following is the correct condition?
- $A + D + G = C + F$
 - $C + D + F = A + G$
 - $A + D + G = D + C$
 - None of those
17. The polynomial which have two zeros and the sum of zeros as one is
- $p(x) = (x + 1)(x - 2)$
- b. $3x^2 - 1$
c. $x^2 - 1$
d. x^2
18. If $a + b + c = 0$ and $a^2 + b^2 + c^2 = 24$, then the value of $ab + bc + ca$ is
- 24
 - 12
 - 12
 - 42
19. The expression $x^4 + 4$ can be factorized as
- $(x^2 + 2x + 2)(x^2 - 2x + 2)$
 - $(x^4 + 4)(x^4 - 4)$
 - $(x^2 + 2)(x^2 - 2)$
 - $(x^2 + x + 1)(x^2 - x + 1)$
20. If $x^4 + \frac{1}{x^4} = 47$, then the value of $x^3 + \frac{1}{x^3}$ is
- 20
 - 18
 - 18
 - 24

SECTION - B : EVERYDAY MATHS

21. The length, breadth and height of a cuboidal tank are $(x + 1)$, $(x - 2)$ and $(x - 5)$, respectively. The volume of the tank is
- $x^3 - 6x^2 + 3x + 10$
 - $x^3 - 2x^2 + 2x + 10$
 - $x^3 + 6x^3 - 3x + 10$
 - $x^3 - 6x^2 - 3x - 10$
22. The volume of a cylindrical vessel whose base area is $(t^2 + 3t - 10)$ and height is $2t$ is
- $2t^3 - 6t^2 - 20t$
 - $2t^3 + 6t^2 + 20t$
 - $2t^3 + 6t^2 - 20t$
 - $2t^3 - 6t^2 + 20t$
23. Nitu got $2x^4 - 6x^3 + 2x^2 - x + 2$ as a pocket money from her mother. She spent ₹ $(x + 2)$ daily for seven days. How much money is left with her?
- ₹92
 - ₹82
 - ₹80
 - ₹100
24. If a rectangular plot has an area of $4x^2 + 12xy + 9y^2 - 8x - 12y$, then the dimensions of the rectangle are
- $(2x - 3y), (2x + 3y - 4)$
 - $(2x + 3y), (2x + 3y - 4)$
 - $(2x + 3y), (2x - 3y + 4)$
 - $(2x + 3y), (2x - 3y - 4)$
25. The area of a rectangular field is $(3x^2 - 4x + 15)$ and the side of a square is $(2x - 4)$. The sum of areas of both the fields is
- $3x^2 - 20x + 31$
 - $3x^2 + 20x + 3$
 - $7x^2 - 20x + 31$
 - $3x^2 - 20x - 31$

SECTION - C : BRAINBOX

26. If $f(y) = y^4 - 2y^3 + 3y^2 - ay + b$ is a polynomial such that when divided by $y - 1$ and $y + 1$, we get the remainders as 5 and 19, respectively. What will be the remainder when $f(y)$ is divided by $y - 2$?
- a. 12 b. -12
 c. 10 d. 6
27. What will be the values of a and b if the polynomial $y^3 + 10y^2 + ay + b$ is exactly divisible by $y - 1$ as well as $y - 2$?
- a. $a = -37, b = 26$
 b. $a = 26, b = -37$
 c. $a = 28, b = -37$
 d. $a = -37, b = -26$
28. The factors of $x^3 - 6x^2 + 11x - 6$ are
- a. $(x - 1)(x - 2)$
 b. $(x - 1)(x - 2)(x - 3)$
 c. $(x + 2)(x - 1)(x + 1)$
 d. $(x - 1)(x - 2)(x + 3)$
29. If one factor of $y^4 + y^2 - 20$ is $(y^2 + 5)$, then the other factor is
- a. $y^2 - 4$
 b. $y^2 + 2$
 c. $y^2 - 2$
 d. $y^2 + 4$
30. If $y^{140} + 2y^{151} + k$ is divisible by $(y + 1)$ then the value of k is
- a. 0
 b. 2
 c. 1
 d. 3

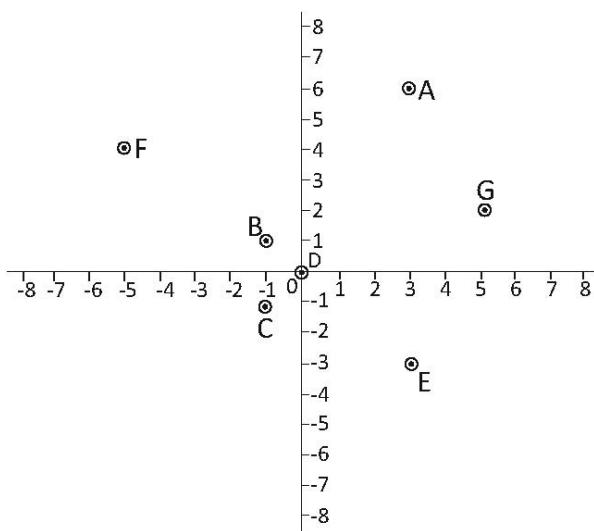
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SECTION - A : MATHEMATICAL REASONING

1. The axis on which the points $(-3, 0)$ and $(19, 0)$ lies is
 - a. x-axis
 - b. y-axis
 - c. both the axis
 - d. none of these
2. The perpendicular distance of point $(4, 3)$ from x-axis is
 - a. 2 units
 - b. 4 units
 - c. 3 units
 - d. none of these
3. The area of triangle formed by points $A(3, 0)$, $B(8, 0)$ and $C(4, 6)$ is
 - a. 15 sq. units
 - b. 20 sq. units
 - c. 45 sq. units
 - d. 40 sq. units
4. The abscissa of a point is positive in the
 - a. quadrant I and IV
 - b. quadrant II and III
 - c. quadrant III and IV
 - d. quadrant I and II
5. A point $(-2, -2)$ lies in
 - a. quadrant I
 - b. quadrant II
 - c. quadrant III
 - d. quadrant IV
6. The ordinate of any point on x-axis is
 - a. 1
 - b. 0
 - c. -1
 - d. 2
7. Two points with same ordinate but different abscissa lie on a line which is
 - a. parallel to x-axis
 - b. parallel to y-axis
8. The signs of (x, y) in quadrant I are ___ and ___, respectively.
 - a. $+, +$
 - b. $+, -$
 - c. $-, -$
 - d. $-, +$
9. The point which lies on y-axis at a distance of 5 units in the negative direction of y-axis is
 - a. $(5, 0)$
 - b. $(-5, 0)$
 - c. $(0, 5)$
 - d. $(0, -5)$
10. On plotting the points $O(0, 0)$, $A(3, 0)$, $B(3, 4)$, $C(0, 4)$ and joining OA , AB , BC and CO , the figure obtained is a
 - a. rectangle
 - b. circle
 - c. trapezium
 - d. none of these
11. Which of these points lie in the 1st quadrant?
 - a. $(1, 2)$
 - b. $(4, -5)$
 - c. $(6, -7)$
 - d. $(-7, 3)$

Directions (Q12 to Q17): Study the graph and answer the following questions.



12. The co-ordinates of point D is

- a. (2, 3) b. (0, 0)
- c. (3, 2) d. (4, 5)

13. The sum of abscissa of points C and E is

- a. 2 b. 4
- c. -1 d. 3

14. The point whose ordinate is two times the abscissa is

- a. F b. G
- c. B d. A

15. The point whose co-ordinates are (-1, -1) is

- a. C b. G
- c. B d. E

16. The co-ordinates of point B is

- a. (0, 0) b. (-3, 1)
- c. (-2, 1) d. (-1, 1)

17. The sum of ordinates of points A and G is

- a. 10 b. 7
- c. 9 d. 2

18. Which of these points lie on y-axis?

- a. (2, 0) b. (1, 2)
- c. (0, 2) d. (3, 2)

19. The co-ordinates of origin is

- a. (0, 0) b. (3, 0)
- c. (-1, 1) d. (-2, 2)

20. The point whose ordinate is 3 and lies on y-axis is

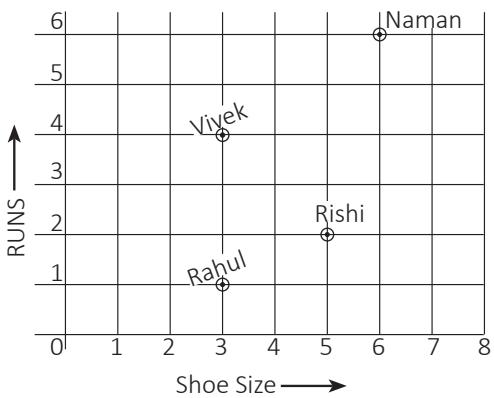
- a. (0, 3) b. (2, 3)
- c. (3, 2) d. (2, 4)

SECTION - B : BRAINBOX

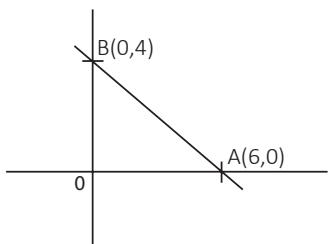
21. Coach Sachin collected data of 5 players from his team. The points on x-axis shows the shoe size and the points on y-axis shows the runs scored by the players.

Which of the following players score more runs as compared to others?

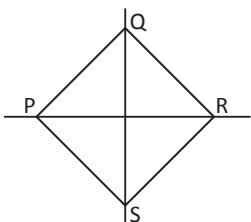
- a. Rahul
- b. Naman
- c. Vivek
- d. Rishi



22. If point C is 2 units left from point B and 3 units below point B, then the co-ordinates of the point C is



- a. (1, 2) b. (-2, 1)
 c. (1, -2) d. (2, -2)
23. Given that PQRS is a rhombus, PR = 4 units and QS = 6 units then which of the following co-ordinates represent points Q and R?



- a. (0, 3), (2, 0) b. (8, 0), (0, 2)
 c. (8, 2), (2, 1) d. (1, 2), (2, 1)

24. If the origin is a mid-point of the line segment joined by the points (3, -2) and (x, y), then the value of x and y is

- a. $x = -3, y = 2$
 b. $x = -2, y = 3$
 c. $x = 3, y = 3$
 d. $x = -2, y = -2$

25. If the origin shifts to (3, 3), then the new co-ordinates of point (6, -4) is

- a. (4, 7)
 b. (3, -7)
 c. (9, -1)
 d. (4, 3)

Darken your choice with HB pencil

1. a b c d
 2. a b c d
 3. a b c d
 4. a b c d
 5. a b c d
 6. a b c d
 7. a b c d

8. a b c d
 9. a b c d
 10. a b c d
 11. a b c d
 12. a b c d
 13. a b c d
 14. a b c d

15. a b c d
 16. a b c d
 17. a b c d
 18. a b c d
 19. a b c d
 20. a b c d
 21. a b c d

22. a b c d
 23. a b c d
 24. a b c d
 25. a b c d

Chapter
4

Linear Equations in Two Variables

SECTION - A : MATHEMATICAL REASONING

1. If the point $(4, 3)$ lies on the graph of the equation $4y = ax + 9$, then the value of a is
 - a. $\frac{3}{4}$
 - b. $\frac{4}{3}$
 - c. $\frac{-3}{4}$
 - d. $\frac{-5}{6}$
2. The equation of a straight line parallel to x -axis is
 - a. $y = a$
 - b. $3y = a$
 - c. $2y = a$
 - d. $4y = a$
3. The graph of the linear equation $2a - b = 4$ cuts x -axis at
 - a. $(3, 0)$
 - b. $(0, 4)$
 - c. $(2, 0)$
 - d. $(0, -2)$
4. The point of intersection of lines $x - y = 1$ and $2x + y = 8$ is
 - a. $(4, 3)$
 - b. $(2, 3)$
 - c. $(3, 2)$
 - d. $(0, 2)$
5. The graph of the linear equation $4x + 3y = 27$ is a line which meets y -axis at a point
 - a. $(9, 0)$
 - b. $(0, 9)$
 - c. $(2, 3)$
 - d. $(3, 2)$
6. The point $(6, 1)$ lies on the line
 - a. $3x + y = 11$
 - b. $2x - y = 11$
 - c. $4x - 2y = 13$
 - d. $3x + 5y = 12$
7. The equation $y = 3$ in two variables can be expressed as
 - a. $1.x + 0.y = 3$
 - b. $0.x + 0.y = 3$
 - c. $0.x + 1.y = 3$
 - d. $1.x + 1.y = 3$
8. The point $(3, -3)$ lies on
 - a. $x + y = 0$
 - b. $x + y = -1$
 - c. $x + y = 2$
 - d. $x + y = 4$
9. The solution of $\frac{2}{3}x - y = 4$ is
 - a. $\frac{15}{2}, 2$
 - b. $9, 2$
 - c. $8, 6$
 - d. $7, 9$
10. If $x = -t$ and $y = \frac{5}{2}$ is a solution of $x + 4y = 7$, then the value of t is
 - a. 4
 - b. 3
 - c. 5
 - d. 2
11. The distance between the graphs of the equations $y = -2$ and $y = 4$ is
 - a. 6 units
 - b. 8 units
 - c. 5 units
 - d. 7 units
12. The number of equations satisfied by $x = 3$ and $y = -5$ are
 - a. one solution.
 - b. two solutions.
 - c. three solutions.
 - d. infinitely many.

13. Which of the following lines pass through the point $(-5, 0)$?
- $4x + y + 2 = x - y - 7$
 - $3x + y + 2 = x - y - 8$
 - $3x + y + 8 = x - y - 5$
 - $5x + y + 7 = x - y - 6$
14. If $(2t - 1, t)$ is a solution of the equation $20x - 18y = 24$, then the value of t is
- 3
 - 2
 - 1
 - 0
15. Which of the following linear equations represent the condition: x and y are supplementary angles?
- $x + y = 180^\circ$
 - $x + y = 90^\circ$
 - $x - y = 180^\circ$
 - $x - y = 90^\circ$
16. In a linear equation $ax + by = c$, the values of a and b cannot be equal to
- rational numbers.
 - decimal numbers.
 - zero.
 - integers.
17. What does 'a' and 'b' represent in a linear equation $ax + by = c$?
- Constants
 - Coefficients
 - Variables
 - None of these
18. If we have to multiply or divide both sides of the equation with a non-zero number, then the solution of the linear equation would
- vary.
 - remain constant.
 - insufficient data.
 - none of these
19. The point on the graph $2x + 5y = 19$, whose ordinate is $\frac{1}{2}$ times its abscissa, is
- $(3, 2)$
 - $(2, 3)$
 - $(5, 2)$
 - $(2, 5)$
20. The area of a ΔABC is found by two straight lines. Which of the following is not the equation of one of the lines?
-

- $2x + y = 6$
- $2x - y + 2 = 0$
- $x - y = 0$
- None of these

SECTION - B : EVERYDAY MATHS

21. Two pens and one eraser cost is ₹35.

Which of the following represents a linear equation in two variables (If x is the cost of a pen and y is the cost of a eraser)?

- a. $2x + 1.y = 35$
- b. $3x + 2y = 35$
- c. $x + 2y = 35$
- d. $x - 2y = 35$

22. The force exerted to pull a cart is directly proportional to the acceleration produced.

If x is the force exerted and y is the acceleration then which of the following linear equations in two variables represent it?

- a. $x = my$
- b. $x^2 = my$
- c. $x = my^2$
- d. None of these

23. Mary is three times as old as her son. In 12 years, Mary's age will be one year less than twice her son's age. How old is each person now?

- a. 11, 44
- b. 11, 33

- c. 11, 55
- d. 22, 44

24. The perimeter of a rectangular field is 12 m. The length is 3 more than twice its width. Which of the following is the correct dimension of the rectangular field?

- a. $l = 5, b = 1$
- b. $l = 11, b = 4$
- c. $l = 3, b = 9$
- d. $l = 5, b = 12$

25. Jai appears in a test to upgrade her level. The test has 100 questions, of which each multiple choice question carries 1 point and each descriptive type question carries 2 points. The total points of 100 questions is 150 points. How many MCQs and descriptive type questions are there in the test?

- a. 25, 25
- b. 50, 50
- c. 20, 20
- d. 40, 40

SECTION - C : BRAINBOX

26. Each letter of the English alphabet given below represent an equation.

- (P) $2x + 4y = 10$
- (Q) $2x - 4y = 6$
- (R) $2x + 6y = 8$
- (S) $x - 2y = 4$

Which of the following letters represent the equations that are parallel to each other?

- a. P and S
- b. Q and S
- c. R and S
- d. P and Q

27. The sum of a two digit numbers and number obtained by reversing the order of its digits is 121. If the units digit is x and the tens digit is y , then which of the following linear equations represent the above statement?

- a. $2x + y = 1$
- b. $x + y = 11$
- c. $x + 2y = 11$
- d. $3x + 2y = 12$

28. Read the statements given below.

Statement 1: The distance between the graph of equations $y = 3$ and $y = -6$ is 9 units.

Statement 2: A line parallel to x-axis cuts the y-axis at a point. Which of the following is the correct option?

- a. Both statements are true.
- b. Both statements are false.
- c. Statement 1 is true, statement 2 is false.
- d. Statement 1 is false, statement 2 is true.

29. Which of the following pair of lines represent the graphical representation of the pair of equations $2x - y + 2 = 0$ and $2x + y = 6$?

a. Intersecting lines

b. Parallel lines

c. Coincident lines

d. All of these

30. Which of the following equations of a straight line is parallel to the straight line $3x + 4y = 7$ and pass through the point $(3, -3)$?

- a. $2x + 4y + 3 = 0$
- b. $3x + 4y + 3 = 0$
- c. $4x + 2y + 9 = 0$
- d. $5x + 2y + 5 = 0$

Darken your choice with HB pencil

1. a b c d

2. a b c d

3. a b c d

4. a b c d

5. a b c d

6. a b c d

7. a b c d

8. a b c d

9. a b c d

10. a b c d

11. a b c d

12. a b c d

13. a b c d

14. a b c d

15. a b c d

16. a b c d

17. a b c d

18. a b c d

19. a b c d

20. a b c d

21. a b c d

22. a b c d

23. a b c d

24. a b c d

25. a b c d

26. a b c d

27. a b c d

28. a b c d

29. a b c d

30. a b c d

SECTION - A : MATHEMATICAL REASONING

1. A point has _____ dimensions.
 - a. 0
 - b. 1
 - c. 2
 - d. 3
2. Euclid divided his famous treatise 'The elements' into
 - a. 13 chapters
 - b. 11 chapters
 - c. 10 chapters
 - d. 9 chapters
3. The total number of propositions deduced by Euclid is
 - a. 965
 - b. 465
 - c. 765
 - d. 865
4. Boundaries of solids are
 - a. Curves
 - b. Lines
 - c. Surfaces
 - d. Points
5. In Indus valley civilization, the bricks used for construction work had dimensions in the ratio
 - a. $1:3:4$
 - b. $4:4:5$
 - c. $4:2:1$
 - d. $4:3:2$
6. Euclid belongs to which of the following countries?
 - a. Babylonia
 - b. Egypt
 - c. England
 - d. Greece
7. It is known that if $x + y = 10$, then $x + y + 3 = 10 + 3$. Which of the following Euclid's axiom illustrates this statement?
 - a. First Axiom
 - b. Second Axiom
 - c. Third Axiom
 - d. Fourth Axiom
8. A pyramid is a solid figure, the base of which is
 - a. only a triangle
 - b. only a square
 - c. any polygon
 - d. only a rectangle
9. The three steps from solid to points are
 - a. Solid \rightarrow surface \rightarrow lines \rightarrow points
 - b. Lines \rightarrow points \rightarrow surface \rightarrow solid
 - c. Lines \rightarrow surface \rightarrow points \rightarrow solid
 - d. Lines \rightarrow surface \rightarrow solid \rightarrow points
10. How many minimum number of lines required to make a closed figure?
 - a. 1
 - b. 2
 - c. 3
 - d. 4
11. Which of the following statements is an axiom?
 - a. A terminated line can be produced indefinitely.
 - b. All right angles are equal to one another.
 - c. The whole is greater than the part.
 - d. Circle can be drawn with any centre and any radius.
12. A figure formed by two straight lines having a common point is called a/an
 - a. angle
 - b. triangle
 - c. rhombus
 - d. kite
13. The number of lines that can pass through one point is
 - a. Infinite
 - b. 2
 - c. 3
 - d. 4

14. ‘Lines are parallel if they do not intersect’ is stated in the form of
- an axiom
 - a postulate
 - a definition
 - a proof
15. Which of the following needs a proof?
- Theorem
 - Axiom
 - Definition
 - Postulate
16. Euclid stated that all right angles are equal to each other in the form of
- an axiom
 - a definition
 - a postulate
 - a proof
17. The side faces of a pyramid are
- triangles
 - squares
 - polygons
 - trapeziums
18. The number of line segments made by three non-collinear points is
- 1
 - 2
 - 3
 - 4
19. Which of the following is an example of a geometrical line?
- Blackboard
 - Sheet of paper
 - Meeting place of two walls
 - Tip of the sharp pencil
20. Playfair’s axiom is equivalent to which postulate of Euclid’s geometry?
- I
 - II
 - V
 - IV
21. The maximum number of points that can lie on a line is
- innumerable
 - 2
 - 3
 - 4
22. It is known that if $a + b = 4$, then $\frac{1}{2}(a + b) = 2$. Which of the following Euclid’s axiom illustrates this statement?
- Axiom VI
 - Axiom IV
 - Axiom V
 - Axiom VII
23. The number of lines passing through two distinct points is
- 1
 - 2
 - 3
 - 4
24. It is known that if $a + b = 4$ then $a + b - c = 4 - c$. Which of the following Euclid’s axiom illustrates this statement?
- Axiom I
 - Axiom III
 - Axiom IV
 - Axiom II
25. It is known that if $a + b = 4$, then $2(a + b) = 8$. Which of the following Euclid’s axiom illustrates this statement?
- Axiom VI
 - Axiom IV
 - Axiom III
 - Axiom I

SECTION - B : BRAINBOX

26. If point 'C' lies between two points A and B such that $AC = BC$, then

- a. $AC = \frac{1}{4}AB$
- b. $AC = \frac{1}{3}AB$
- c. $AC = \frac{1}{2}AB$
- d. None of these

27. If the point P lies between M and N, C is the mid-point of MP then,

- a. $MP + CN = MN$
- b. $MP + CP = MN$
- c. $MC + CN = MN$
- d. $MC + PN = MN$

28. Which of the following statements is false?

- a. If two circles are equal, then their radii are equal.
- b. A terminated line can be produced indefinitely on both the sides.
- c. Only one line can pass through a single point.
- d. None of these

29. Read the statements carefully.

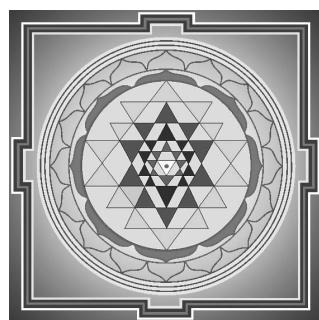
Statement 1: If B lies on line AC and A, B and C are distinct such that, $AB + BC = AC$, then $AB < AC$.

Statement 2: There can be only one common point in two distinct straight lines.

Which of the following is the correct option?

- a. Both statements are true
- b. Both statements are false
- c. Neither A nor B
- d. None of these

30. The number of interwoven isosceles triangles in Sri Yantra is



- a. 7
- b. 8
- c. 9
- d. 11

Darken your choice with HB pencil

1. a b c d

2. a b c d

3. a b c d

4. a b c d

5. a b c d

6. a b c d

7. a b c d

8. a b c d

9. a b c d

10. a b c d

11. a b c d

12. a b c d

13. a b c d

14. a b c d

15. a b c d

16. a b c d

17. a b c d

18. a b c d

19. a b c d

20. a b c d

21. a b c d

22. a b c d

23. a b c d

24. a b c d

25. a b c d

26. a b c d

27. a b c d

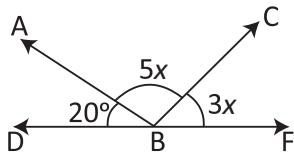
28. a b c d

29. a b c d

30. a b c d

SECTION - A : MATHEMATICAL REASONING

1. In the given figure, DBF is a line. The value of x is



- a. 40°
b. 20°
c. 60°
d. 80°

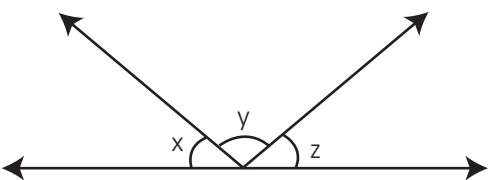
2. The angles of a triangle are in the ratio $2 : 4 : 3$. The largest angle of the triangle is

- a. 80°
b. 60°
c. 70°
d. 40°

3. How many triangles can be drawn with angles of measure 45° , 64° and 72° ?

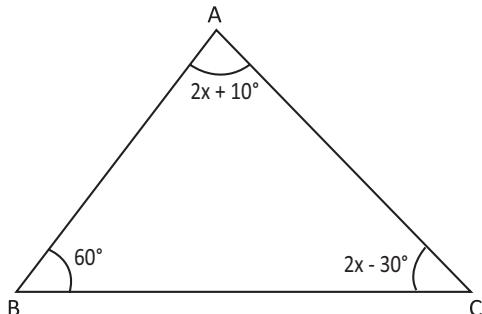
- a. 1
b. 2
c. 0
d. 3

4. In the given figure, if $\frac{y}{z} = 4$ and $\frac{x}{z} = 5$, then the value of y is



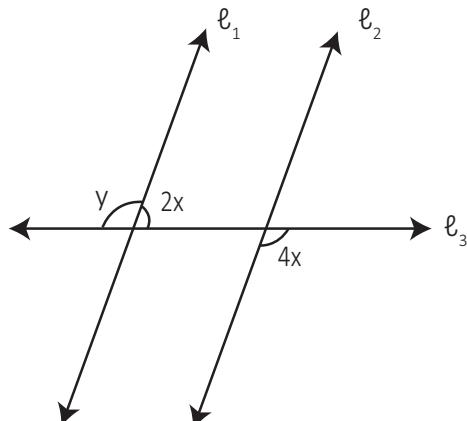
- a. 60°
b. 70°
c. 72°
d. 50°

5. In the given figure, the measure of $\angle A$ and $\angle C$ is



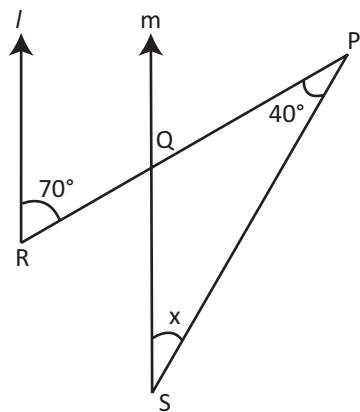
- a. $\angle A = 80^\circ$, $\angle C = 40^\circ$
b. $\angle A = 70^\circ$, $\angle C = 35^\circ$
c. $\angle A = 40^\circ$, $\angle C = 80^\circ$
d. $\angle A = 40^\circ$, $\angle C = 50^\circ$

6. In the given figure, the value of y is



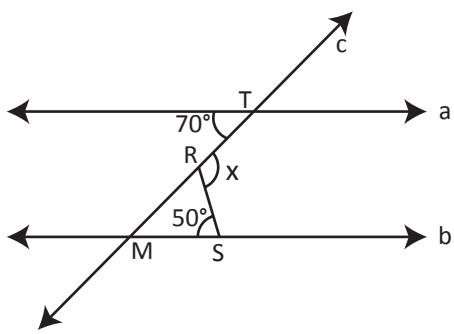
- a. 100°
b. 150°
c. 80°
d. 120°

7. In the given figure, if $l \parallel m$, then the value of x is



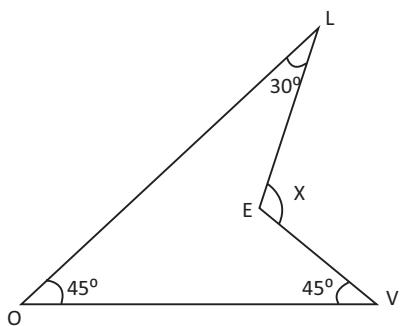
- a. 40°
- b. 30°
- c. 60°
- d. 70°

8. In the given figure, the value of x is



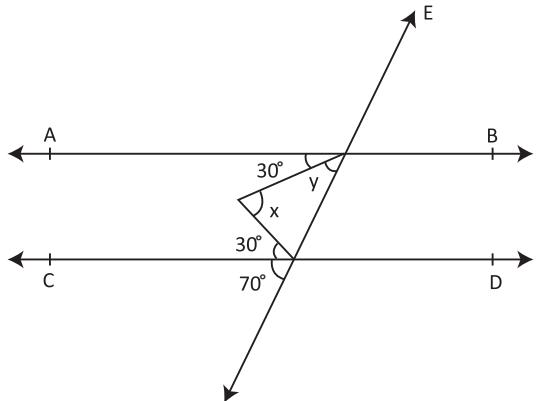
- a. 120°
- b. 160°
- c. 140°
- d. 110°

9. In the given figure, the value of x is



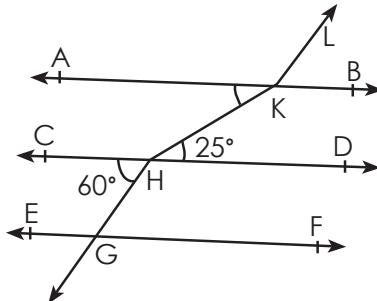
- a. 100°
- b. 120°
- c. 110°
- d. 130°

10. in the given figure, the value of x is



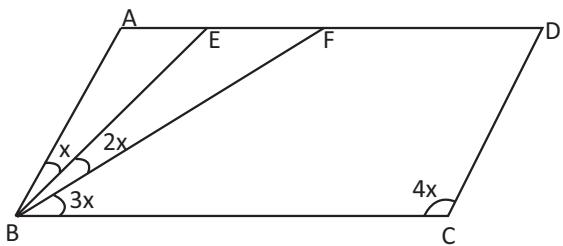
- a. 60°
- b. 80°
- c. 20°
- d. 40°

11. In the given figure, $AB \parallel CD \parallel EF$ and $GH \parallel KL$. The value of $\angle HKA$ is



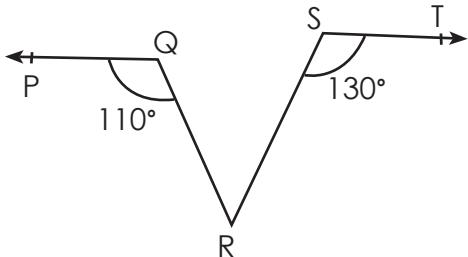
- a. 25°
- b. 30°
- c. 35°
- d. 40°

12. In the given figure, ABCD is a parallelogram, the value of $\angle DCB$ is



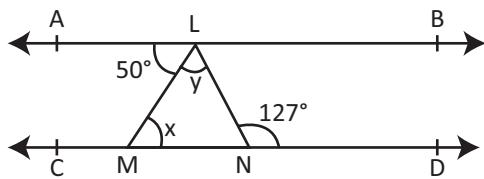
- a. 80°
- b. 60°
- c. 90°
- d. 72°

13. If $PQ \parallel ST$, $\angle PQR = 110^\circ$ and $\angle RSM = 130^\circ$, then $\angle QRS$ is equal to



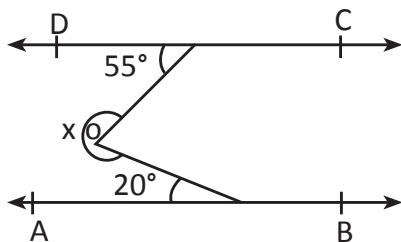
- a. 40°
- b. 60°
- c. 70°
- d. 80°

14. In the given figure, $AB \parallel CD$, $\angle ALM = 50^\circ$, $\angle LND = 127^\circ$, then the value of $\angle x$ and $\angle y$ is



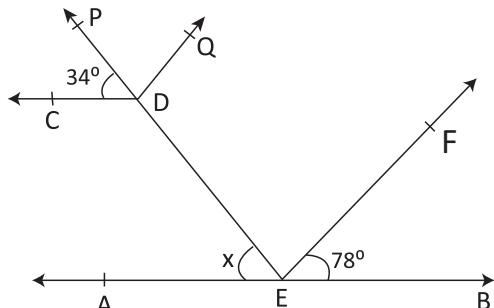
- a. $x = 50^\circ$, $y = 77^\circ$
- b. $y = 77^\circ$, $x = 23^\circ$
- c. $x = 45^\circ$, $y = 50^\circ$
- d. $x = 77^\circ$, $y = 50^\circ$

15. In the given figure, $AB \parallel CD$, then the value of x is



- a. 300°
- b. 285°
- c. 200°
- d. 315°

16. In the given figure, $AB \parallel CD$ and $EF \parallel DQ$. The value of x is



- a. 70°
- b. 68°
- c. 34°
- d. 35°

17. If A, B and C are three angles of a triangle and $A - B = 25^\circ$, $B - C = 40^\circ$, then the measures of $\angle A$, $\angle B$ and $\angle C$ are _____, respectively.

- a. $90^\circ, 65^\circ, 25^\circ$
- b. $25^\circ, 90^\circ, 65^\circ$
- c. $65^\circ, 90^\circ, 25^\circ$
- d. $90^\circ, 25^\circ, 65^\circ$

18. In $\triangle ABC$ and $\triangle DEF$, $AB = FD$ and $\angle A = \angle D$. Two triangles will be congruent by SAS axiom if

- a. $BC = EF$
- b. $AC = DE$
- c. $AC = EF$
- d. $BC = DE$

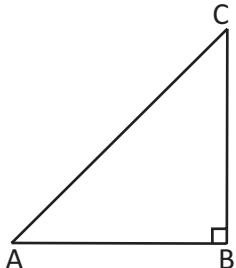
19. In $\triangle ABC$ and $\triangle PQR$, $AB = AC$, $\angle C = \angle P$ and $\angle B = \angle Q$. The two triangles are

- a. isosceles but not congruent to $\triangle PQR$.
- b. isosceles and congruent to $\triangle PQR$.
- c. neither Isosceles nor congruent to $\triangle PQR$.
- d. congruent to $\triangle PQR$ but not isosceles.

20. In $\triangle ABC$, $BC = AB$, $\angle B = 50^\circ$. So, the value of $\angle C$ is

- a. 20°
- b. 65°
- c. 60°
- d. 100°

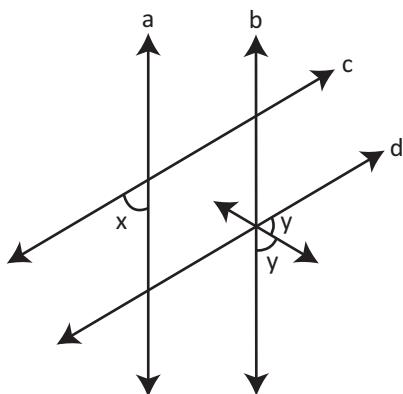
SECTION - B : EVERYDAY MATHS

21. If in a $\triangle ABC$ and $\triangle PQR$, $AB = QR$, $BC = PR$ and $CA = PQ$, then
- $\triangle ABC \cong \triangle PQR$
 - $\triangle CBA \cong \triangle PRQ$
 - $\triangle BAC \cong \triangle RPQ$
 - $\triangle PQR \cong \triangle ABC$
22. In $\triangle ABC$, if $\angle C > \angle B$, then
- $BC > AC$
 - $AB > AC$
 - $AB < AC$
 - $BC < AC$
23. In $\triangle ABC \cong \triangle FGH$, then which of the following sides will be equal to FH ?
- | | |
|---------|---------|
| a. AC | b. AB |
| c. BC | d. CB |
24. In a right-angled triangle ABC , which of the following conditions is true?
- 
- A diagram of a right-angled triangle with vertices labeled A, B, and C. Vertex A is at the bottom-left, vertex B is at the bottom-right, and vertex C is at the top. A small square symbol at vertex B indicates that the angle there is a right angle.
- $AB > AC$
 - $AC > CB$
 - $AC > AB$
 - Both B and C
25. Which of the following set of numbers represent the lengths of sides of a triangle, where a , b and c are the sides of the triangle?
- $a = 10.6, b = 5.6, c = 4$
 - $a = 10.2, b = 4.0, c = 6.4$
 - $a = 11.7, b = 4.3, c = 5$
 - $a = 11.7, b = 4.7, c = 6$

SECTION - C : BRAINBOX

26. Which of the following statements is incorrect?
- The sum of lengths of three sides of a triangle is greater than the sum of lengths of its three altitudes.
 - Of all the line segments that can be drawn from a point to a line not containing it, the perpendicular line segment is the shortest one.
 - If two angles of a triangle are unequal, then the greater angle has the larger side opposite to it.
 - Difference of measures of any two sides of a triangle is equal to the third side.
27. Read the statements given below.
- Statement 1: A triangle whose no two sides are equal is called a scalene triangle.
- Statement 2: If a side of a triangle is produced, the exterior angle so formed is equal to the sum of opposite interior angles.
- Which of the following statements is true?
- Statement 1 is false and statement 2 is true.
 - Statement 1 is true and statement 2 is false.
 - Both statements are true.
 - Both statements are false.

28. In the given figure, if $a \parallel b$, $c \parallel d$. The value of y in terms of x is



- a. $90 - \frac{x}{2}$
- b. $90 + 2x$
- c. $90 - x$
- d. $90 + x$

29. In $\triangle ABC$, D, E and F are the mid-points of sides BC, CA and AB, respectively. Which of the following triangles is congruent to $\triangle DEF$?

- a. $\triangle ABC$
- b. $\triangle BFD$ and $\triangle CDE$
- c. $\triangle AEF$
- d. $\triangle AFE$, $\triangle BFD$, $\triangle CDE$

30. Read the following statements.

When two straight lines intersect

- i. adjacent angles are complementary.
- ii. adjacent angles are supplementary.
- iii. opposite angles are equal.
- iv. opposite angles are supplementary

Which of the following is the correct option?

- a. (ii) and (iii) are correct
- b. (i) and (ii) are correct
- c. (i) and (iii) are correct
- d. (i) and (iv) are correct

Darken your choice with HB pencil :-

1. (a) (b) (c) (d)
2. (a) (b) (c) (d)
3. (a) (b) (c) (d)
4. (a) (b) (c) (d)
5. (a) (b) (c) (d)
6. (a) (b) (c) (d)
7. (a) (b) (c) (d)
8. (a) (b) (c) (d)

9. (a) (b) (c) (d)
10. (a) (b) (c) (d)
11. (a) (b) (c) (d)
12. (a) (b) (c) (d)
13. (a) (b) (c) (d)
14. (a) (b) (c) (d)
15. (a) (b) (c) (d)
16. (a) (b) (c) (d)

17. (a) (b) (c) (d)
18. (a) (b) (c) (d)
19. (a) (b) (c) (d)
20. (a) (b) (c) (d)
21. (a) (b) (c) (d)
22. (a) (b) (c) (d)
23. (a) (b) (c) (d)
24. (a) (b) (c) (d)

25. (a) (b) (c) (d)
26. (a) (b) (c) (d)
27. (a) (b) (c) (d)
28. (a) (b) (c) (d)
29. (a) (b) (c) (d)
30. (a) (b) (c) (d)

SECTION - A : MATHEMATICAL REASONING

1. The two diagonals are equal in a
 a. parallelogram b. rhombus
 c. rectangle d. triangle
2. The bisectors of any two adjacent angles of a parallelogram intersect at
 a. 90° b. 45°
 c. do not intersect d. 180°
3. The figure formed by joining the mid-points of adjacent sides of a rectangle is a
 a. parallelogram b. rectangle
 c. square d. rhombus
4. In a quadrilateral PQRS, $\angle P + \angle R$ is two times $\angle Q + \angle S$. If $\angle P = 40^\circ$, then the value of $\angle R$ is
 a. 60° b. 200°
 c. 280° d. 120°
5. In a quadrilateral ABCD, the angles are in ratio $2 : 4 : 6 : 8$.
6. Which of the following is the measure of the smallest angle of a parallelogram, if one angle is 30° less than twice the smallest angle?
 a. 60° b. 70°
 c. 40° d. 65°
7. Given that ABCD is a square and AC is a bisector. The measure of $\angle BCA$ is
 a. 90° b. 45°
 c. 50° d. 25°
8. In a parallelogram LMNO, if bisectors of $\angle L$ and $\angle M$ meet at X, then the value of $\angle XLM$ and $\angle XML$ is _____ each.
 a. 45° b. 90°
 c. 55° d. 25°
9. If one diagonal of a rhombus is equal to its side, then the diagonals of the rhombus are in the ratio
 a. $1 : \sqrt{3}$ b. $\sqrt{2} : 1$
 c. $3 : 1$ d. $1 : 2$
10. The angles of a quadrilateral are in the ratio $4 : 7 : 9 : 10$. Which of the following is true?
 a. The largest angle in quadrilateral is 150° .
 b. The smallest angle is 80° .
 c. The second largest angle 30° .
 d. none of these.
11. ABCD is a trapezium where $AB \parallel DC$. BD is a diagonal and E is the mid-point of AD. If a line is drawn from E parallel to



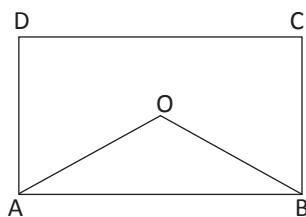
The value of $\angle B$ is equal to

- a. 72° b. 144°
 c. 128° d. 24°

AB intersecting BC at F, then which of the following is true?

- a. $BF = FC$
- b. $EA = FB$
- c. $CF = DE$
- d. None of these

12. In a parallelogram ABCD, the bisectors of $\angle A$ and $\angle B$ meet at point O as shown in the figure, given below. The measure of $\angle AOB$ is

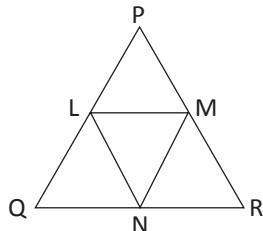


- a. 90°
- b. 180°
- c. 70°
- d. 100°

13. PQRS is a parallelogram. If A is a point on PS such that $PA = \frac{1}{3} PS$, and B is a point on QR such that $RB = \frac{1}{3} QR$, then which of the following is true?

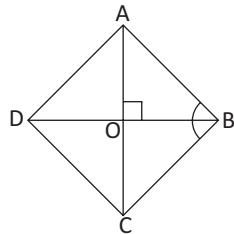
- a. PARB is a parallelogram
- b. PARB is a rectangle
- c. PARB is a trapezium
- d. PARB is a square

14. If points L, M and N are mid-points of PQ, PR and QR of $\triangle PQR$, then $\triangle LMN$ is an/a



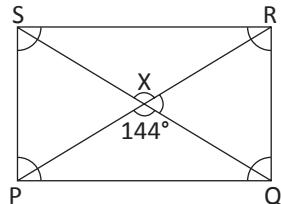
- a. equilateral triangle
- b. isosceles triangle
- c. scalene triangle
- d. none of these

15. If ABCD is a rhombus with $\angle ABC = 56^\circ$, then the measure of $\angle ACB$ is



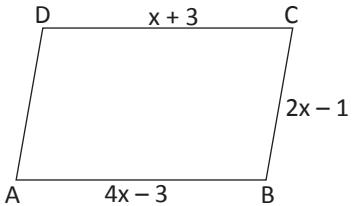
- a. 62°
- b. 90°
- c. 56°
- d. 45°

16. The diagonals of a rectangle PQRS meet at X. If $\angle PXQ = 144^\circ$, then the measure of $\angle XPS$ is



- a. 72°
- b. 60°
- c. 70°
- d. 80°

17. In the given parallelogram ABCD, the measure of AD is

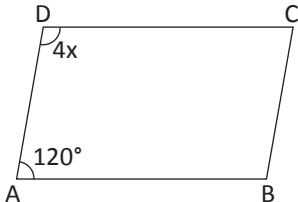


- a. 5
- b. 2
- c. 1
- d. 9

18. Which of the following statements is true about the diagonals of a rhombus?

- a. They never intersect each other.
- b. They bisect its opposite angles.
- c. They are congruent to each other.
- d. The bisect its sides.

19. In the given parallelogram ABCD, the measure of $\angle D$ is



- a. 60°
- b. 80°
- c. 70°
- d. 90°

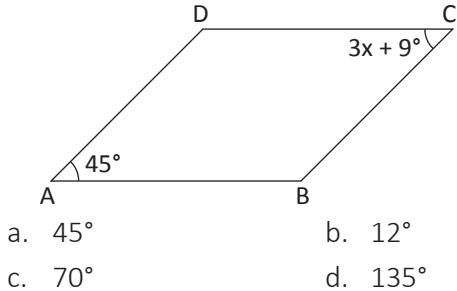
20. If ABCD is a quadrilateral that has four congruent sides and its opposite angles are equal, then the quadrilateral is a

- a. rhombus
- b. square
- c. rectangle
- d. trapezium

21. The diagonals do not necessarily bisect the interior angles in a

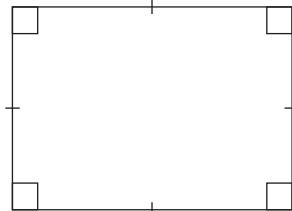
- a. rectangle
- b. square
- c. rhombus
- d. all of these

22. In the given parallelogram ABCD, the measure of $\angle C$ is



- a. 45°
- b. 12°
- c. 70°
- d. 135°

23. The figure is not



- a. trapezoid
- b. rhombus
- c. square
- d. both a and b

24. The consecutive angles of a parallelogram are

- a. complementary
- b. supplementary
- c. neither a nor b
- d. none of these

25. If consecutive sides of a parallelogram are equal, then it is necessarily a

- a. kite
- b. rhombus
- c. square
- d. rectangle

SECTION - B : BRAINBOX

26. If angles A, B, C and D of a quadrilateral ABCD, when taken in order, are in ratio $3 : 7 : 6 : 4$, then ABCD is a

- a. trapezium
- b. square
- c. rectangle
- d. none of these

27. ABCD is a quadrilateral in which $AB \parallel CD$, F is the mid-point of AB and $DF \parallel BC$. If area of $\triangle ADF$ is 50 cm^2 , then the area of the quadrilateral ABCD is

- a. 220 cm^2
- b. 150 cm^2
- c. 200 cm^2
- d. 160 cm^2

28. Which of the following is a correct match?

[P] The diagonals of a parallelogram	(i) 360° .
[Q] The opposite sides of a parallelogram	(ii) congruent.
[R] The sum of all angles in a quadrilateral is	(iii) bisect each other.
[S] The opposite angles of a parallelogram are	(iv) are equal.

- a. $P \leftrightarrow$ (iii) $Q \leftrightarrow$ (iv) $R \leftrightarrow$ (i) $S \leftrightarrow$ (ii)
- b. $P \leftrightarrow$ (i) $Q \leftrightarrow$ (iv) $R \leftrightarrow$ (iii) $S \leftrightarrow$ (ii)
- c. $P \leftrightarrow$ (i) $Q \leftrightarrow$ (iv) $R \leftrightarrow$ (ii) $S \leftrightarrow$ (iii)
- d. $P \leftrightarrow$ (iv) $Q \leftrightarrow$ (i) $R \leftrightarrow$ (ii) $S \leftrightarrow$ (iii)

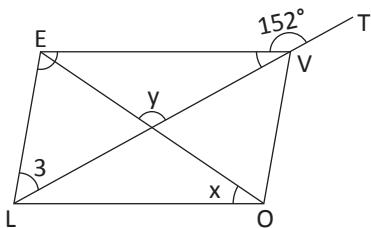
29. Read the following statements. Which of the following is true?

Statement 1: If diagonal of a parallelogram bisects one of the angles of the parallelogram, then it also bisects the second angle.

Statement 2: The diagonals of a rhombus are not perpendicular to each other.

- a. Both Statements are true .
- b. Both Statements are false .
- c. Statement 1 is true and Statement 2 false.
- d. Statement 1 false and Statement 2 is true.

30. In the given figure, LOVE is a rhombus in which the diagonal LV is produced to T. If $\angle EVT = 52^\circ$, then the value of x and y is



- a. $62^\circ, 90^\circ$
- b. $62^\circ, 55^\circ$
- c. $45^\circ, 95^\circ$
- d. $60^\circ, 70^\circ$

Darken your choice with HB pencil

1. a b c d

2. a b c d

3. a b c d

4. a b c d

5. a b c d

6. a b c d

7. a b c d

8. a b c d

9. a b c d

10. a b c d

11. a b c d

12. a b c d

13. a b c d

14. a b c d

15. a b c d

16. a b c d

17. a b c d

18. a b c d

19. a b c d

20. a b c d

21. a b c d

22. a b c d

23. a b c d

24. a b c d

25. a b c d

26. a b c d

27. a b c d

28. a b c d

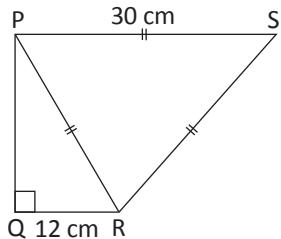
29. a b c d

30. a b c d

Areas of Triangles and Parallelograms

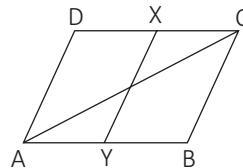
SECTION - A : MATHEMATICAL REASONING

1. The area of the quadrilateral PQRS ($\sqrt{3} = 1.73, \sqrt{7} = 2.65$) is

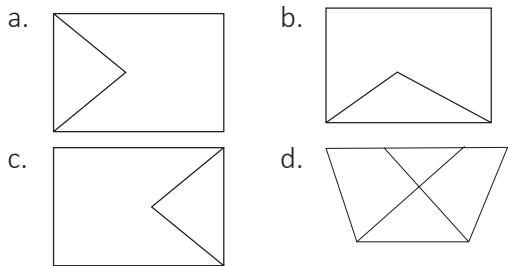


- a. 554.3 cm^2
 - b. 164.9 cm^2
 - c. 228.4 cm^2
 - d. 333.8 cm^2
2. A triangle and a parallelogram are on the same base and between same parallels. The ratio of area of the triangle and parallelogram is
- a. $2 : 1$
 - b. $\sqrt{2} : 1$
 - c. $1 : 2$
 - d. $3 : 1$
3. The figure obtained by joining the mid-points of adjacent sides of a rectangle of length 10 cm and 8 cm is
- a. rhombus of area 40 cm^2 .
 - b. square of area 30 cm^2 .
 - c. rectangle of area 30 cm^2 .
 - d. none of these
4. If AD is a median of $\triangle ABC$ and P is any point on AC such that $\text{ar}(\triangle ADP) : \text{ar}(\triangle ABD) = 4 : 5$, then $\text{ar}(\triangle PDC) : \text{ar}(\triangle ABC)$ is
- a. $1 : 10$
 - b. $1 : 2$
 - c. $3 : 10$
 - d. $7 : 5$

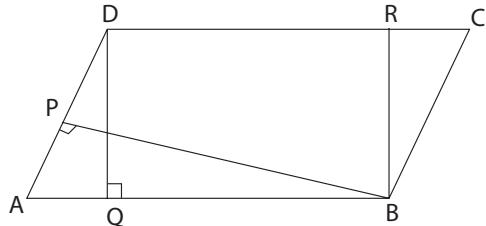
5. In a parallelogram ABCD, X, Y are the mid-points of DC and AB, respectively and the points A and C are joined together to form a diagonal AC. Then the ratio of $\text{ar}(\text{Parallelogram } XCBY) : \text{ar}(\triangle CAB)$ is



- a. $1 : 2$
 - b. $1 : 1$
 - c. $2 : 1$
 - d. $1 : 4$
6. In which of following figure the two polygons are on the same base and between the same parallels?

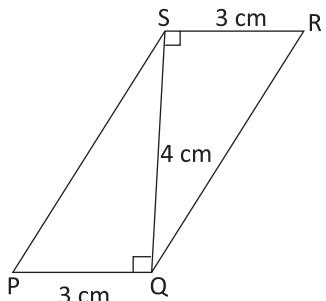


7. The area of the given parallelogram ABCD is



- a. $AB \times BP$
- b. $BC \times BR$
- c. $AB \times DQ$
- d. $AD \times DQ$

8. The area of PQRS in the given figure is

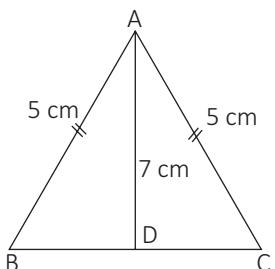


- a. 16 cm^2
- b. 32 cm^2
- c. 12 cm^2
- d. 20 cm^2

9. The side of an equilateral triangle is 4 cm. So, the area of the triangle is _____ cm^2 .

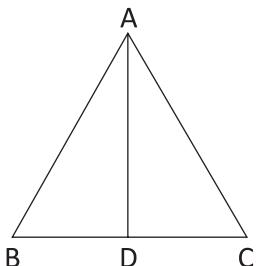
- a. 4
- b. $2\sqrt{3}$
- c. $4\sqrt{3}$
- d. $\sqrt{3}$

10. ABC is an isosceles triangle with equal sides of measure 5 cm each. If the perimeter of the triangle is 18 cm and height AD = 7 cm, then the area of ΔABC is _____ cm^2 .



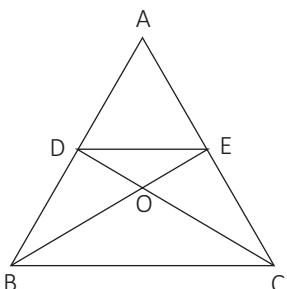
- a. 28
- b. 30
- c. 26
- d. 35

11. In the given figure, AD is one of the medians of ΔABC . The ratio of area of ΔABD and ΔACD is



- a. 1 : 2
- b. 2 : 1
- c. 1 : 1
- d. 2 : 3

12. In the given figure $DE \parallel BC$. Which of the following relations is true?



- a. $\text{ar} (\Delta ACD) = \text{ar} (\Delta BOC)$
- b. $\text{ar} (\Delta ABE) = \text{ar} (\Delta ACD)$
- c. $\text{ar} (\Delta ACD) = \text{ar} (\Delta ODE)$
- d. $\text{ar} (\Delta ACD) = \text{ar} (\Delta CDE)$

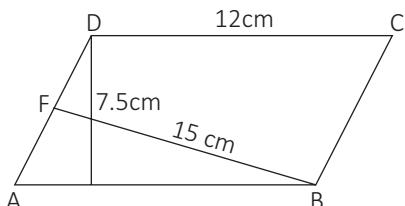
13. If AD is a median of a ΔABC and $\text{ar} (\Delta ADC) = 15 \text{ cm}^2$, then $\text{ar} (\Delta ABC) = \text{_____} \text{cm}^2$.

- a. 15
- b. 30
- c. 45
- d. 40

14. The medians of ΔABC intersect at G. If $\text{ar} (\Delta ABC) = 27 \text{ cm}^2$, then $\text{ar} (\Delta BGC) = \text{_____} \text{cm}^2$.

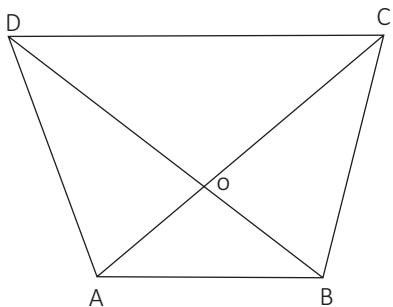
- a. 27
- b. 29
- c. 9
- d. 7

15. If ABCD, in the given figure, is a parallelogram, then the measure of AD is

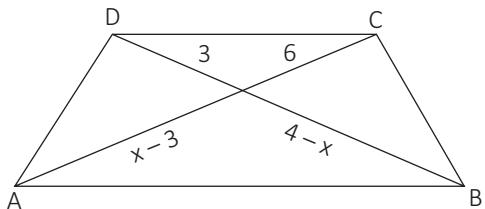


- a. 7 cm
- b. 5 cm
- c. 6 cm
- d. 8 cm

16. The diagonal AC and BD of a trapezium ABCD (given below), in which $AB \parallel DC$, intersect each other at O. So, the triangle which is equal in $\text{ar} (\Delta AOD)$ is

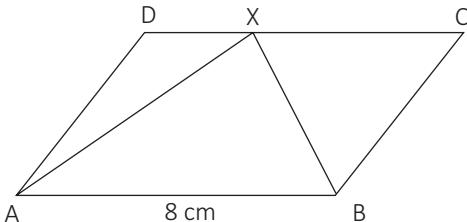


- a. ΔBOC b. ΔDOC
 c. ΔAOB d. None of these
17. ABCD is a trapezium in which $AB \parallel CD$. If $\text{ar}(\Delta ABD) = 24 \text{ cm}^2$ and $AB = 8 \text{ cm}$, then the height of ΔABC is
 a. 5 cm b. 3 cm
 c. 6 cm d. 2 cm
18. ABCD, in the given figure, is an isosceles trapezium. The value of x is



- a. 3 b. 4
 c. 6 d. 5

19. ABCD, in the given figure, is a parallelogram with $AB = 8 \text{ cm}$, $\text{ar}(\Delta AXB) = 32 \text{ cm}^2$. So, the altitude of the parallelogram ABCD is

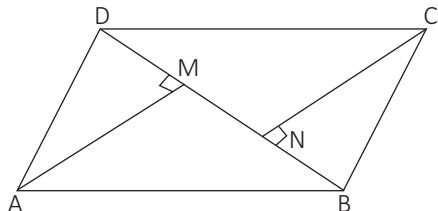


- a. 8 cm b. 4 cm
 c. 6 cm d. 2 cm

20. In ΔABC , D and E are the points on side BC such that $CD = DE = EB$. If $\text{ar}(\Delta ABC) = 27 \text{ cm}^2$, then $\text{ar}(\Delta ADE)$ is
 a. 9 cm^2
 b. 18 cm^2
 c. 21 cm^2
 d. 27 cm^2

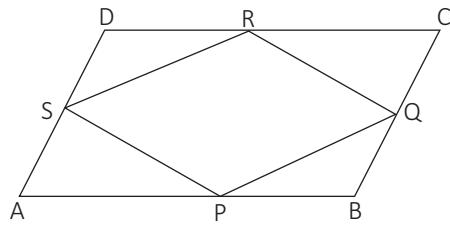
SECTION - B : EVERYDAY MATHS

21. In the given figure, BD is one of the diagonals of a quadrilateral ABCD. AM and CN are perpendiculars from A and C, respectively on BD, then $\text{ar}(ABCD)$ is



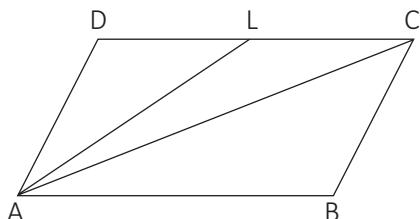
- a. $\frac{1}{2}BD(AM+CN)$ b. $\frac{1}{2}(AM+CN)$
 c. $(AM + CN)BD$ d. $(AM - CN)BD$

22. If P, Q, R and S are, respectively the mid-points of the sides of a parallelogram ABCD and $\text{ar}(\text{parallelogram PQRS}) = 32.5 \text{ cm}^2$, then $\text{ar}(\text{parallelogram ABCD})$ is



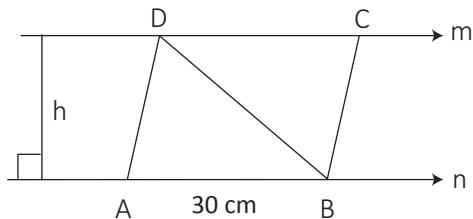
- a. 35 cm^2 b. 37 cm^2
 c. 65 cm^2 d. 60 cm^2

23. In the given figure, ABCD is a parallelogram and L is the mid-point of DC. If $\text{ar}(\text{parallelogram } ABCD) = 84 \text{ cm}^2$, then $\text{ar}(\Delta ACL)$ is



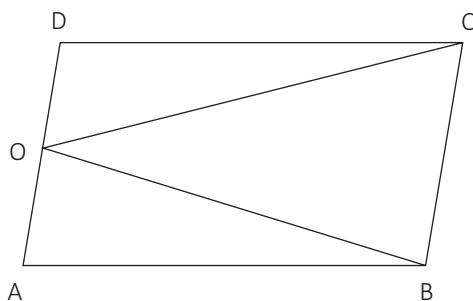
- a. 27 cm^2
- b. 29 cm^2
- c. 21 cm^2
- d. None of these

24. In the given figure, $m \parallel n$ and ABCD is a parallelogram. If area of ΔDCB is 321 cm^2 , then the value of h is



- a. 20.6 cm
- b. 22.6 cm
- c. 21.4 cm
- d. 20.4 cm

25. ABCD is a parallelogram and O is a mid-point on side AD. If $\text{ar}(\Delta OCB) = 10 \text{ cm}^2$, then the value of $\text{ar}(\Delta ODC) + \text{ar}(\Delta OAB)$ is



- a. 15 cm^2
- b. 20 cm^2
- c. 22 cm^2
- d. 10 cm^2

SECTION - C : BRAINBOX

26. Read the statements given below.

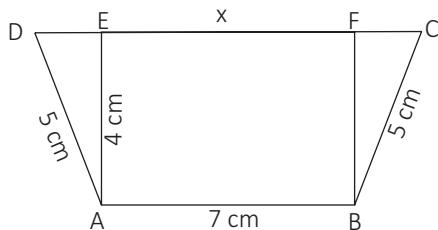
Statement 1: Triangles with equal areas which have one side of one of the triangles equal to one side of the other, have their corresponding altitudes equal.

Statement 2: Two congruent figures have equal areas but the converse need not be true.

Which of the following is the correct option?

- a. Both statements are true.
- b. Both statements are false.
- c. Statement 1 is true and Statement 2 is false.
- d. Statement 2 is true and Statement 1 is false.

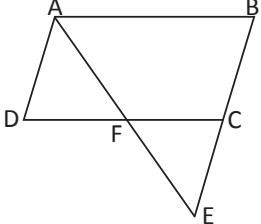
27. In the given figure, the value of x is



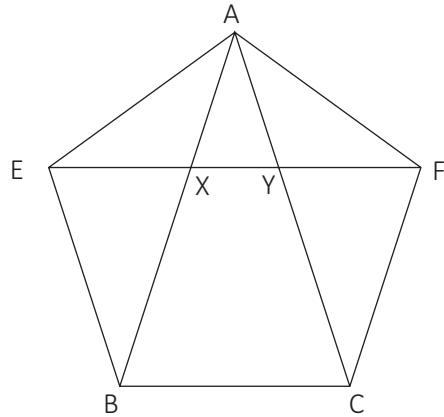
- a. 12 cm
- b. 10 cm
- c. 13 cm
- d. 9 cm

28. Which of the following statements is incorrect?

- a. The area of a parallelogram is the product of its base and corresponding altitudes.

- b. The area of a trapezium is half of its height and sum of the parallel sides.
- c. A diagonal of a parallelogram divides it into four triangles of equal area.
- d. Triangles on the same base and between the same parallel are equal in area.
29. ABCD is a parallelogram in which BC is produced to E such that $CE = BC$, AE intersects CD at F. If $\text{ar}(\Delta DFB) = 3 \text{ cm}^2$, then $\text{ar}(\text{parallelogram } ABCD)$ is _____ cm^2 .
- a. 12 b. 14
 c. 16 d. 20
- 

30. XY is a line parallel to side BC of a ΔABC . If $BE \parallel AC$ and $CF \parallel AB$ meet XY in E and F, respectively, then which of the following is true?



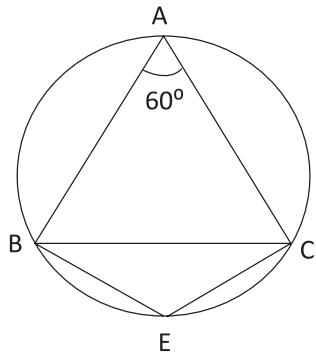
- a. $\text{ar}(\Delta ABE) = \text{ar}(\text{parallelogram } ABCF)$
 b. $\text{ar}(\Delta ABE) = \text{ar}(\Delta ACF)$
 c. both a and b
 d. neither a nor b

Darken your choice with HB pencil

- | | | | |
|--|---|---|---|
| 1. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 9. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 17. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 25. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d |
| 2. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 10. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 18. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 26. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d |
| 3. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 11. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 19. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 27. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d |
| 4. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 12. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 20. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 28. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d |
| 5. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 13. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 21. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 29. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d |
| 6. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 14. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 22. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 30. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d |
| 7. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 15. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 23. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | |
| 8. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 16. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 24. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | |

SECTION - A : MATHEMATICAL REASONING

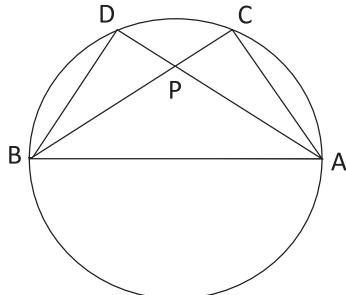
1. In the given figure, ABC is an equilateral triangle. The $m\angle BEC$ is



- a. 120°
b. 140°
c. 60°
d. 90°

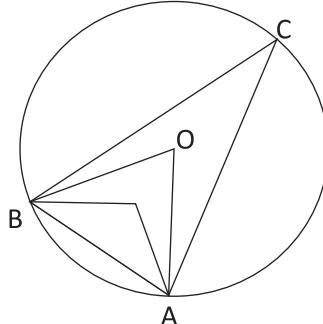
2. If ABCD is a parallelogram and a circle through points A, B and C intersect CD at E, then the value of $\frac{AE}{AD}$ is
- a. 1
b. 2
c. 3
d. 4

3. If $\angle DAC = 25^\circ$ and $\angle APB = 105^\circ$, then the $m\angle ADB$ is



- a. 70°
b. 50°
c. 80°
d. 60°

4. If O is the centre of the circle and in an isosceles triangle AOB, $m\angle OAB = 50^\circ$ then the measure of $\angle ACB$ is



- a. 45°
b. 55°
c. 40°
d. 60°

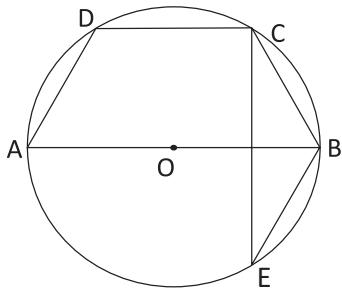
5. Two circles with centres O and O' intersect each other at points A and B. A line PQ is drawn parallel to OO' through A intersecting the circles at P and Q. The ratio PQ : OO' is equal to

- a. $1 : 2$
b. $2 : 1$
c. $3 : 1$
d. $2 : 3$

6. Two chords AB and AC of a circle subtend angles equal to 110° and 40° , respectively at the centre. If AB and AC lie on the opposite sides of the centre, the $m\angle BAC$ is

- a. 125°
b. 110°
c. 102°
d. 105°

7. If $\angle ADC = 120^\circ$ and chord BC = chord BE, then $m\angle CBE$ is

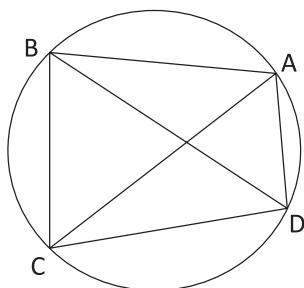


- a. 120°
b. 30°
c. 60°
d. 90°

8. ABCD is a cyclic quadrilateral such that AB is a diameter of the circle circumscribing it and $\angle ADC = 130^\circ$, then the value of $\angle ABC$ is

- a. 50°
b. 60°
c. 120°
d. 40°

9. If $\angle ACB = 55^\circ$ and $\angle BAD = 100^\circ$, then the $m\angle ABD$ is



- a. 45°
b. 25°
c. 35°
d. 65°

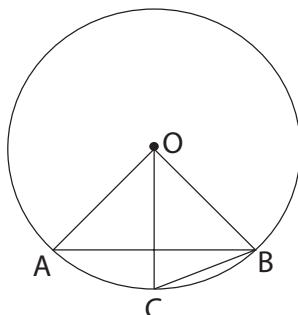
10. Given that ABCD is a cyclic quadrilateral such that AB is a diameter of the circle circumscribing it and $\angle ADC = 115^\circ$, then the value of $\angle BAC$ is

- a. 15°
b. 20°
c. 25°
d. 35°

11. A chord of a circle is equal to its radius. The angle subtended by this chord at any point on the circle in the major segment is

- a. 60°
b. 30°
c. 90°
d. 45°

12. If $\angle OAB = 25^\circ$ and $\angle OCB = 59^\circ$, then value of $\angle BOC$ is

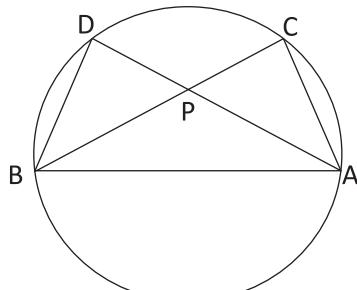


- a. 52°
b. 65°
c. 57°
d. 67°

13. The bisectors of opposite angles of a cyclic quadrilateral ABCD intersect the circle circumscribing it at the points P and Q. If radius of the circle is 7 cm, then the distance between the points P and Q is

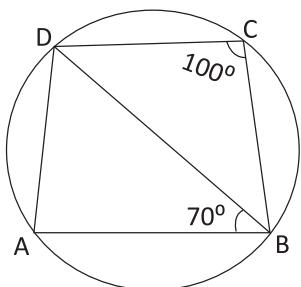
- a. $14\sqrt{2}$ cm
b. 7 cm
c. 14 cm
d. 16 cm

14. If $\angle APB = 115^\circ$ and $\angle ADB = 70^\circ$, then the $m\angle DAC$ is



- a. 45°
b. 50°
c. 60°
d. 40°

15. ABCD, in the given figure, is a cyclic quadrilateral. If $\angle BCD = 100^\circ$ and $\angle ABD = 70^\circ$, then the $m\angle ADB$ is



- a. 40°
 - b. 90°
 - c. 60°
 - d. 30°
16. In a cyclic quadrilateral ABCD, if $m\angle A = 5m\angle C$, then $m\angle A =$
- a. 150°
 - b. 90°
 - c. 30°
 - d. 60°
17. In a cyclic quadrilateral PQRS, if $\angle P - \angle R = 60^\circ$, then $\angle R$
- a. 60°
 - b. 120°
 - c. 90°
 - d. 50°

18. C is a point on minor arc AB of the circle with centre O. Given that $\angle ACB = x^\circ$ and $\angle AOB = Y^\circ$, express y in terms of x. If ACBO is a parallelogram, then the value of x is

- a. 90°
- b. 120°
- c. 130°
- d. 140°

19. If one chord of a circle is known to have a length of 10 cm, then the radius of circle must be
- a. 5 cm
 - b. greater than 5 cm
 - c. less than 5 cm
 - d. none of these
20. If AB, BC and CD are equal chords of a circle with O as centre, then the $m\angle AOB$ is
- a. 60°
 - b. 120°
 - c. 90°
 - d. None of these

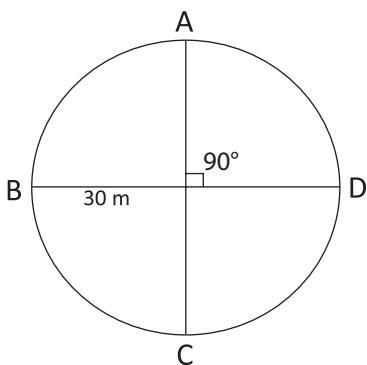
SECTION - B : EVERYDAY MATHS

21. Three boys Ravi, Nitish and Suresh are playing a game in a circular park of radius 20 m. All three boys are standing on the minor arc of the circle in such a way that Nitish is between Ravi and Suresh. If the distance between Ravi and Nitish; Nitish and Suresh is 24 m, then the distance between Ravi and Suresh is
- a. 30 m
 - b. 38.4 m
 - c. 40 m
 - d. 42 m
22. A circular park of radius 40 m is situated in a colony. Three girls are sitting at equal distances on its boundary, each having

- a toy telephone in their hands to talk to each other. The length of the string of each phone is
- a. 40 m
 - b. $20\sqrt{3}$ m
 - c. $40\sqrt{3}$ m
 - d. None of these

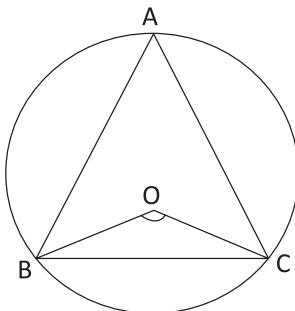
23. Two concentric circles of radii of 9 cm and 12 cm are drawn. The smaller circle is painted with red; the part outside the smaller circle and inside the larger circle is painted orange. The ratio of areas painted orange and red is
- a. 7 : 9
 - b. 9 : 7
 - c. 2 : 3
 - d. 7 : 5

24. Mathematics day was organised in a circular corner of the school. Four stalls ABCD were arranged as shown in the given figure. The distance between a pair of adjacent food stalls is



- a. $30\sqrt{2}$ m
- b. $60\sqrt{2}$ m
- c. $70\sqrt{2}$ m
- d. $60\sqrt{3}$ m

25. Three shops were situated at the points A, B and C of a circle as shown in the figure given below. These shops were operated by handicapped persons. If each of the three shops are equidistant from each other, then the value of $\angle BOC$ is



- a. 60°
- b. 120°
- c. 240°
- d. 270°

SECTION - C : BRAINBOX

26. AB and CD are two parallel chords of a circle of measure 10 cm and 24 cm, respectively. If these chords are on the opposite sides of the centre of the circle and the distance between them is 17 cm, then the radius of the circle is

- a. 13 cm
- b. 16 cm
- c. 15 cm
- d. 17 cm

27. Read the statements given below.

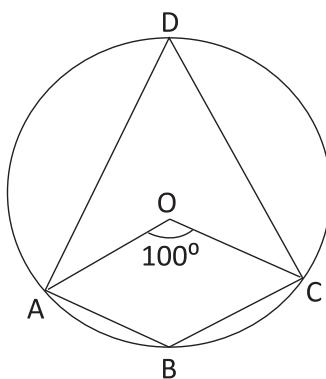
Statement 1: An isosceles trapezium is a cyclic quadrilateral.

Statement 2: The angles in the same segment of the circle are equal.

Which of the following is the correct option?

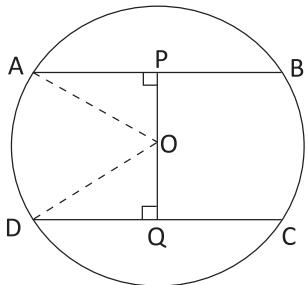
- a. Statement 1 is false, statement 2 is true.
- b. Statement 2 is false, statement 1 is true.
- c. Both are true
- d. Both are false

28. If O is the centre of the circle and $m\angle AOC = 100^\circ$, then $m\angle ADC$ and $m\angle ABC$ are equal to



- a. $50^\circ, 130^\circ$
- b. $40^\circ, 120^\circ$
- c. $30^\circ, 60^\circ$
- d. $40^\circ, 160^\circ$

29. O is the centre of the circle of radius 5 cm. If $OP \perp AB$, $OQ \perp CD$, $AB \parallel CD$, $AB = 6$ cm and $CD = 8$ cm, then the measure of PQ is



- a. 7 cm b. 6 cm
c. 2 cm d. 8 cm

30. If two circles of radii 10 cm and 8 cm intersect each other and the length of the common chord is 12 cm, then the distance between their centres is

- a. 13.0 cm
b. 13.05 cm
c. 13.09 cm
d. 13.29 cm

Darken your choice with HB pencil

1. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d	9. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d	17. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d	25. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d
2. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d	10. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d	18. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d	26. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d
3. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d	11. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d	19. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d	27. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d
4. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d	12. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d	20. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d	28. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d
5. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d	13. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d	21. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d	29. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d
6. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d	14. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d	22. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d	30. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d
7. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d	15. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d	23. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d	
8. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d	16. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d	24. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d	

SECTION - A : MATHEMATICAL REASONING

1. Which of the following angles can be constructed with the help of a ruler and a pair of compass?
- 35°
 - 40°
 - 37.5°
 - 47.2°
2. A triangle can be constructed when its three _____ are given.
- sides
 - angles
 - both A and B
 - none of these
3. Which of the following cannot be the length of BC required to construct the triangle ABC such that $AC = 7.4\text{ cm}$ and $AB = 5\text{ cm}$?
- 3.5 cm
 - 2.1 cm
 - 4.7 cm
 - 3.4 cm
4. Which of the following sets of angles can be the angles of a triangle?
- $30^\circ, 60^\circ, 80^\circ$
 - $40^\circ, 60^\circ, 70^\circ$
 - $50^\circ, 30^\circ, 100^\circ$
 - $70^\circ, 80^\circ, 20^\circ$
5. If a, b and c are the lengths of three sides of a triangle, then which of the following statements is true?
- $a + b < c$
 - $a - b < c$
 - $a + b = c$
 - None of these

SECTION - B : BRAINBOX

6. The construction of the triangle ABC is not possible if it is given that $BC = 4\text{ cm}$, $\angle C = 60^\circ$ and the difference of AB and AC is
- 3.5 cm
 - 4.5 cm
 - 3 cm
 - 2.5 cm
7. Which of the following statements is incorrect?
- A ΔABC can be constructed in which $BC = 6\text{ cm}$, $\angle C = 30^\circ$ and $AC - AB = 4\text{ cm}$.
 - To construct a triangle given its base, a base angle and sum of other two sides required.
8. The construction of a ΔABC , given that $\angle B = 120^\circ$ and $AB + BC + CA = 12\text{ cm}$, is possible when $\angle C$ is
- 35°
 - 65°
 - 70°
 - 80°
9. Given below are the steps of construction of a right triangle when length of one side is 3.5 cm and the sum of other sides and hypotenuse is 5.5 cm. Which of the following steps is incorrect?
- Step 1: Draw a line segment AB of length 5 cm.

Step 2: At B, construct $\angle CBY = 90^\circ$.

Step 3: Cut off a line segment BD = 5.5 cm on ray BY.

Step 4: Join CD.

Step 5: Draw the perpendicular bisector of CD, intersecting BD at point A.

Step 6: Join AC. Thus, the $\triangle ABC$ is the required triangle.

- a. Steps 2 and 3
- b. Only step 1
- c. Steps 5 and 6
- d. Only step 4

10. Given below are the steps of construction of a triangle ABC in which base AB = 5 cm, $\angle A = 30^\circ$ and $AC - BC = 2.5$ cm. Which of the following is the correct sequence of constructing the triangle?

Step 1: Draw $\angle BAX = 30^\circ$.

Step 2: Join BD.

Step 3: Draw the perpendicular bisector of BD which cuts AX at C.

Step 4: Join BC to obtain the required $\triangle ABC$.

Step 5: Draw base AB = 5 cm.

Step 6: From Ray AX, cut off the line segment AD = 2.5 cm ($= AC - BC$).

- a. Step 5 → Step 1 → Step 6 → Step 2 → Step 3 → Step 4
- b. Step 1 → Step 5 → Step 6 → Step 2 → Step 3 → Step 4
- c. Step 1 → Step 2 → Step 4 → Step 3 → Step 5 → Step 6
- d. None of these

Darken your choice with HB pencil

1. a b c d

2. a b c d

3. a b c d

4. a b c d

5. a b c d

6. a b c d

7. a b c d

8. a b c d

9. a b c d

10. a b c d

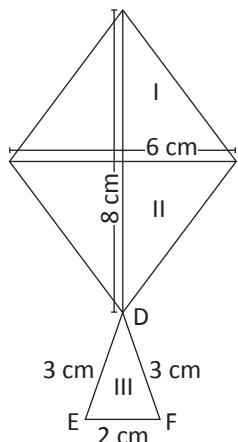
SECTION - A : MATHEMATICAL REASONING

1. If two sides of a triangle are 8 cm and 11 cm and the perimeter is 32 cm, then the area of the triangle is ____ cm².
- a. $6\sqrt{30}$ b. $2\sqrt{30}$
 c. $4\sqrt{30}$ d. $8\sqrt{30}$
2. An isosceles triangle has perimeter 30 cm and the unequal side is 12 cm. The area of the triangle is
- a. $18\sqrt{5}$ cm² b. $2\sqrt{15}$ cm²
 c. $4\sqrt{15}$ cm² d. $3\sqrt{15}$ cm²
3. The perimeter of a triangular field is 450 m and its sides are in the ratio 13 : 12 : 5. The area of the field is
- a. 7500 m² b. 3500 m²
 c. 6750 m² d. 8750 m²
4. If each side of a triangle is doubled, then percentage increase in its area will be
- a. 500 % b. 200 %
 c. 30 0% d. 100 %
5. If the perimeter of an equilateral triangle is $\sqrt{3}$ times the area of the equilateral triangle, then the length of its side is
- a. 2 m b. 4 m
 c. 6 m d. 10 m
6. The area of regular hexagon of side 8 cm is
- a. $90\sqrt{3}$ cm² b. $96\sqrt{3}$ cm²
 c. $75\sqrt{3}$ cm² d. $80\sqrt{3}$ cm²
7. The base of an isosceles triangle is 20 cm and the median drawn from the opposite vertex is 10 cm. The area of the triangle is ____ cm².
- a. 100 b. 400
 c. 600 d. 500
8. The length of each side of an equilateral triangle is ____ cm, if the area of the equilateral triangle is $16\sqrt{3}$ cm².
- a. 7 b. 6
 c. 8 d. 10
9. A square and an equilateral triangle have equal perimeters. If the length of the diagonals of a square is $15\sqrt{2}$ cm, then the area of the triangle is ____ cm².
- a. $200\sqrt{3}$ b. $100\sqrt{3}$
 c. $800\sqrt{3}$ d. None of these.
10. If length of the median of an equilateral triangle is 't' cm, then the area of the triangle in terms of t is
- a. $\frac{t^2}{\sqrt{3}}$
 b. $t^2\sqrt{3}$
 c. $\sqrt{3}t$
 d. $\sqrt{3}t$

11. If sides of a triangle are 11 m, 15 m and 16 m, then the length of the altitude to the largest side of the triangle is
- $\frac{15}{4}\sqrt{7}$ m
 - $\frac{13}{7}$ m
 - $\frac{4}{15}\sqrt{7}$ m
 - $\frac{4}{15}$ m
12. If the area of an isosceles right triangle is 32 cm^2 , the perimeter of the triangle is ____ cm.
- $16+2\sqrt{8}$
 - $16+8\sqrt{2}$
 - $8+16\sqrt{2}$
 - $16+4\sqrt{2}$
13. In a quadrilateral ABCD, $AB = 4 \text{ cm}$, $BC = 13 \text{ cm}$, $CD = 13 \text{ cm}$, $AD = 14 \text{ cm}$, and $AC = 15 \text{ cm}$. The area of the quadrilateral is
- 106 cm^2
 - 108 cm^2
 - 200 cm^2
 - 100 cm^2
14. The area of parallelogram ABCD (given below) is ____ cm^2 , and the length of its altitude is ____ cm.
-
- 84, 12
 - 76, 14
 - 80, 13
 - 20, 16
15. The perimeter of an isosceles triangle is 54 cm. The ratio of one of its equal sides to its base is 5 : 8. The area of the triangle is
- 114.8 cm^2
 - 112.5 cm^2
 - 108.5 cm^2
 - None of these
16. Let p be the area of a $\triangle ABC$. If the sides and the altitudes are doubled, the area of the triangle would be ____ cm^2 .
- $8p$
 - $16p$
 - $4p$
 - $6p$
17. The area of an equilateral triangle, whose side is $4\sqrt{3}$, is _____ cm^2 .
- $4\sqrt{3}$
 - $18\sqrt{3}$
 - $16\sqrt{3}$
 - $12\sqrt{3}$
18. The area of the shaded portion is
-
- 54 cm^2
 - 24 cm^2
 - 46 cm^2
 - 28 cm^2
19. A triangle and a parallelogram have the same area and the same base. If the sides of the triangle are 26 cm, 28 cm and 30 cm and the parallelogram stands on the base 28 cm, then the height of the parallelogram is ____ cm.
- 12
 - 14
 - 16
 - 20
20. If the lengths of the sides of a triangle are 5 cm, 12 cm and 13 cm, then the length of the perpendicular from the opposite vertex to the side of length 13 cm is _____ cm.
- $\frac{20}{17} \text{ cm}$
 - $\frac{60}{13} \text{ cm}$
 - $\frac{20}{9} \text{ cm}$
 - $\frac{40}{7} \text{ cm}$

SECTION - B : EVERYDAY MATHS

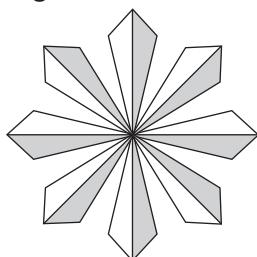
21. A kite is made of three different coloured sheets of paper marked as I, II and III in the given figure. How much paper has been used for making the kite?



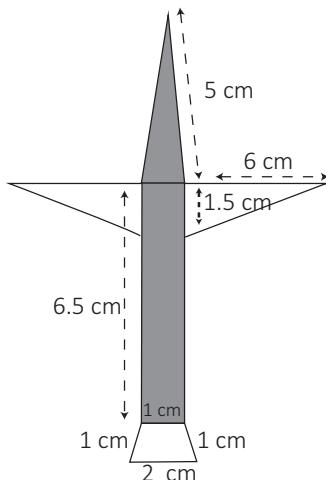
- a. $24 - 2\sqrt{2} \text{ cm}^2$
 - b. $24 + 2\sqrt{2} \text{ cm}^2$
 - c. $2 + 24\sqrt{2} \text{ cm}^2$
 - d. $2 - 24\sqrt{2} \text{ cm}^2$
22. A grass field in the shape of a rhombus is used for 18 cows to graze. If each side of the rhombus is 30 m and its longer diagonal is 48 m, the area of grass field that each cow would be grazing is
- a. 40 m^2
 - b. 45 m^2
 - c. 48 m^2
 - d. 50 m^2

23. A design on a wall in the shape of a flower is made up of 16 triangular wall stickers, each of whose sides are 9 cm, 28 cm and 35 cm. The cost of making the flower at the rate of ₹2.5 per cm^2 is

- a. ₹3525
- b. ₹3526
- c. ₹3528
- d. ₹3527

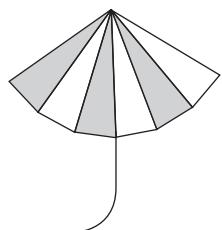


24. Radha made a picture of a rocket with coloured paper as shown in the given figure. The total area of the paper used is



- a. $\approx 15.4 \text{ cm}^2$
- b. $\approx 19.4 \text{ cm}^2$
- c. $\approx 17.4 \text{ cm}^2$
- d. $\approx 16.4 \text{ cm}^2$

25. An umbrella is made by stitching 12 triangular pieces, each piece measuring 6 cm, 5 cm and 5 cm. The cloth required to make an umbrella is



- a. 144 cm^2
- b. 124 cm^2
- c. 148 cm^2
- d. 126 cm^2

26. A carpenter has cut a board in the shape of a trapezium. If the lengths of the parallel sides of the trapezium are 28 cm and 31 cm and the length of its non-parallel sides are 25 cm and 26 cm, respectively, then the area of the board is

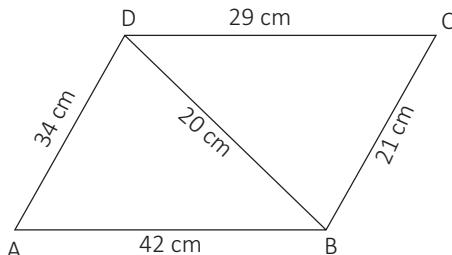
- a. 608 cm^2
- b. 708 cm^2
- c. 108 cm^2
- d. 208 cm^2

SECTION - C : BRAINBOX

27. If the perimeter of a triangular field is 96 m and the ratio of its sides is 15 : 13 : 4, then the area is _____ m².

- a. 208 m²
- b. 216 m²
- c. 308 m²
- d. 400 m²

28. The area of the quadrilateral ABCD in which AB = 42 cm, BC = 21 cm, CD = 29 cm, DA = 34 cm and diagonal BD = 20 cm is



- a. 440 cm²
- b. 445 cm²
- c. 447 cm²
- d. 546 cm²

29. A park, in the shape of a quadrilateral ABCD, has $\angle C = 90^\circ$, AB = 18 m, BC = 24 m, CD = 10 m and AD = 16 m. The area of the park is

- a. 216.56 m²
- b. 216.65 m²
- c. 261.56 m²
- d. 261.65 m²

30. Which of the following statements is incorrect?

- a. The area of a quadrilateral can be calculated using of heron's formula.
- b. If each side of an equilateral triangle is tripled then the percentage increase in the area of triangle is 800%.
- c. The area of an equilateral triangle, whose side is 4 cm, is $2\sqrt{3}$ cm².
- d. If each side of an equilateral triangle is doubled, then the percentage increase in the area of an equilateral triangle is 300%.

Darken your choice with HB pencil

1. a b c d

2. a b c d

3. a b c d

4. a b c d

5. a b c d

6. a b c d

7. a b c d

8. a b c d

9. a b c d

10. a b c d

11. a b c d

12. a b c d

13. a b c d

14. a b c d

15. a b c d

16. a b c d

17. a b c d

18. a b c d

19. a b c d

20. a b c d

21. a b c d

22. a b c d

23. a b c d

24. a b c d

25. a b c d

26. a b c d

27. a b c d

28. a b c d

29. a b c d

30. a b c d

SECTION - A : MATHEMATICAL REASONING

Study the given statements carefully and answer Q1 and Q2.

A cubical box has edge of length 10 cm each and a cuboidal box is 12.5 cm long, 10 cm wide and 8 cm high.

1. Which box has the greater lateral surface area and by how much?
 - a. Cubical box by 20 cm^2
 - b. Cubical box by 40 cm^2
 - c. Cubical box by 10 cm^2
 - d. Cubical box by 60 cm^2
2. Which box has the smaller total surface area and how much?
 - a. Cubical box by 10 cm^2
 - b. Cubical box by 5 cm^2
 - c. Cubical box by 15 cm^2
 - d. Cubical box by 20 cm^2
3. A solid sphere of radius 3 cm is melted and then recast into small spherical balls, each of diameter 0.6 cm. The number of small balls thus obtained is
 - a. 3000
 - b. 1000
 - c. 2000
 - d. 4000
4. The garden roller is 1.4 m wide and 2 m long. How much area would it cover in 50 revolutions?
 - a. 220 m^2
 - b. 440 m^2
 - c. 280 m^2
 - d. 480 m^2

5. A cone, a hemisphere and a cylinder stand on equal bases and have the same height. The ratio of their volumes is
 - a. $1 : 2 : 3$
 - b. $3 : 4 : 6$
 - c. $2 : 4 : 8$
 - d. $1 : 5 : 7$
6. 10 cubic meters clay is uniformly spread on a land of area 10 m^2 . The rise in the level of the ground is
 - a. 1 m
 - b. 10 cm
 - c. 20 cm
 - d. 70 cm
7. The cost of constructing a wall 6 m long, 4 m high and 20 cm thick at rate of ₹50 per m^3 is
 - a. ₹200
 - b. ₹180
 - c. ₹240
 - d. ₹280
8. If the areas of the adjacent faces of a rectangular block are in ratio $3 : 2 : 1$ and the volume of the block is 4500 cm^3 , then the length of the shortest edge is
 - a. 10 cm
 - b. 20 cm
 - c. 25 cm
 - d. 15 cm
9. On a particular day, the rainfall recorded in a terrace of length 10 m and 5 m breadth is 20 cm. The quantity of water collected in the terrace is
 - a. 20,000 litres
 - b. 10,000 litres
 - c. 25,000 litres
 - d. None of these

10. A right cylindrical pillar of radius 7 m and length 30 m is to be constructed using a sheet of iron. The area of the iron sheet required in m^2 is
- 1280 m^2
 - 1380 m^2
 - 1225 m^2
 - 1320 m^2
11. The radius of a wire is decreased to one-fourth of the given wire. If the volume remains the same, the length would become _____ the given wire.
- 4 times
 - 3 times
 - 12 times
 - 16 times
12. Two circular cylinders of equal volume have their heights in the ratio 1 : 3. The ratio of their radii is
- $\sqrt{3} : 1$
 - $1 : \sqrt{3}$
 - $\sqrt{2} : 1$
 - 2 : 1
13. The slant height of a cone is increased by 30 %. If the radius remains the same, the curved surface area is increased by
- 2.5 %
 - 30 %
 - 20 %
 - 10 %
14. The largest sphere is cut off from a cube of side 18 cm. The volume of sphere would be
- 970π
 - 976π
 - 972π
 - 470π
15. If a solid sphere of radius 6 cm is moulded into 27 spherical solid balls of equal radius, then the surface area of each ball is
- 17π
 - 27π
 - 16π
 - 29π
16. If a sphere is inscribed in a cube, then the ratio of volume of sphere to the volume of the cube is
- $\pi : 2$
 - $\pi : 5$
 - $\pi : 6$
 - $\pi : 3$
17. The volume of a cone is 18480 m^3 . If height of the cone is 40 m, then the radius of its base is
- 21 m
 - 22 m
 - 17 m
 - 25 m
18. The radius and slant height of a cone are in ratio 4 : 7. If its curved surface area is 792 cm^2 , then the radius is _____ cm.
- 20
 - 12
 - 21
 - 27
19. The ratio between the curved surface area and the total surface area of a right circular cylinder is 1 : 3. The ratio between height and radius of the cylinder is
- 1 : 3
 - 3 : 1
 - 1 : 2
 - 2 : 3
20. A vessel in the form of a hemispherical bowl is full of water. Its water is emptied into a cylinder. If the internal radii of the bowl and cylinder are, respectively, 10 cm and 5 cm, then the height of water in the cylinder is _____ cm.
- $\frac{1}{14}$
 - $\frac{80}{3}$
 - $\frac{1}{15}$
 - $\frac{1}{19}$

SECTION - B : EVERYDAY MATHS

21. A solid wooden toy is in the shape of a right circular cone surmounted on a hemisphere. If the radius of the hemisphere is 3 cm and the total height of the toy is 11 cm, then the volume of the wooden toy is _____ cm^3 .
- a. 134 b. 132
c. 140 d. 144
22. Three solid spheres of iron whose diameters are 3 cm, 4 cm and 5 cm, respectively are melted into a single solid sphere. The radius of the solid sphere is
- a. 7 cm b. 8 cm
c. 6 cm d. 4 cm
23. A conical tent is to accommodate 12 persons. Each person must have 5 m^2 of the space to sit on the ground and 20 cm^3 of air to breath. The height of the cone is
- a. 12 m b. 24 m
c. 48 m d. 42 m
24. A hollow cylindrical pipe made up of copper is 210 cm long. Its outer and inner diameters are 12 and 4 cm, respectively. The volume of copper used in making the pipe is
- a. $21,120 \text{ cm}^3$
b. $22,140 \text{ cm}^3$
c. $21,420 \text{ cm}^3$
d. $21,102 \text{ cm}^3$
25. A reservoir is in the form of a rectangular parallelopiped (cuboid). Its length is 20 m. If 21 kL of water is removed from the reservoir, then the water level decrease by 0.15 m. The width of the reservoir ($1 \text{ KL} = 1 \text{ m}^3$) is
- a. 6 m
b. 8 m
c. 9 m
d. 7 m

SECTION - C : BRAINBOX

26. If each edge of two cubes is increased by 50 %, then the percentage increase in its surface area is
- a. 120 % b. 125 %
c. 200 % d. 100 %
27. The sum of the length, breadth and depth of a cuboid is 19 cm and its diagonal is $5\sqrt{3}$ cm. Its total surface area is _____ cm^2 .
- a. 280 b. 270
c. 260 d. 286
28. The volume of a cylinder of radius r is $\frac{1}{4}$ of the volume of a rectangular box with square base of side x. If the cylinder and the box have equal heights, then what is r in terms of x?
- a. $\frac{x}{2\sqrt{\pi}}$ b. $\frac{2}{x\sqrt{\pi}}$
c. $\frac{\sqrt{\pi}}{20c}$ d. $\sqrt{\pi}$

29. Read the following statements.

Statement 1: If a sphere is inscribed in a cube, then the ratio of the volume of the cube to volume of the sphere is $6 : \pi$.

Statement 2: The ratio of total surface area and curved surface area of a cylinder of radius r and height h is $h + r : r$.

Which of the following is the correct option?

- a. Both statements are true.
- b. Both statements are false.
- c. Statement 1 is true but statement 2 is false.
- d. Statement 2 is true but statement 1 is false.

30. From each corner of a rectangular metallic sheet with dimensions $40\text{ cm} \times 30\text{ cm}$, a square of side 6 cm is cut off. If an open box is made of the remaining sheet, then the volume of the box formed is

- a. 3024 cm^3
- b. 3000 cm^3
- c. 2024 cm^3
- d. 2025 cm^3

Darken your choice with HB pencil

1. a b c d

2. a b c d

3. a b c d

4. a b c d

5. a b c d

6. a b c d

7. a b c d

8. a b c d

9. a b c d

10. a b c d

11. a b c d

12. a b c d

13. a b c d

14. a b c d

15. a b c d

16. a b c d

17. a b c d

18. a b c d

19. a b c d

20. a b c d

21. a b c d

22. a b c d

23. a b c d

24. a b c d

25. a b c d

26. a b c d

27. a b c d

28. a b c d

29. a b c d

30. a b c d

SECTION - A : MATHEMATICAL REASONING

1. The median of the following observations (arranged in ascending order) 7, 9, 15, 18, $(x + 3)$, $(x + 5)$, 30, 32, 34, 39 is 28. The value of x is
 - a. 22
 - b. 24
 - c. 26
 - d. 28
2. Mean of factors of 10 is
 - a. 6
 - b. 2
 - c. 4.5
 - d. 5
3. The algebraic sum of deviations from the mean is always equal to
 - a. zero
 - b. 1
 - c. -1
 - d. None of these
4. The mean of five numbers is 18. If one number is excluded, their mean is 16. The excluded number will be
 - a. 20
 - b. 25
 - c. 26
 - d. 30
5. The mean of a set of 50 numbers is 38. If two numbers, namely, 45 & 55 are discarded, then the mean of the remaining set of numbers is
 - a. 36.5
 - b. 37
 - c. 37.2
 - d. 37.5
6. In which of the following class intervals, the number 50 is included?
 - a. 40-50
 - b. 30-40
 - c. 50-60
 - d. 60-70
7. If \bar{x} represents the mean of n observations x_1, x_2, \dots, x_n , then the value of $\sum_{i=1}^n (x_i - \bar{x})$ is
 - a. -1
 - b. 0
 - c. 1
 - d. $n - 1$
8. The median of the data 78, 56, 22, 34, 45, 54, 39, 68, 54, 84 is
 - a. 45
 - b. 54
 - c. 49.5
 - d. 56
9. If $\bar{x}_1, \bar{x}_2, \bar{x}_3, \dots, \bar{x}_n$ are the means of n groups with number of n_1, n_2, \dots, n_n observations, respectively, then the mean \bar{x} of all groups taken together is given by
 - a. $\sum_{i=1}^n n_i \bar{x}_i$
 - b. $\frac{\sum_{i=1}^n n_i \bar{x}_i}{n^2}$
 - c. $\frac{\sum_{i=1}^n n_i \bar{x}_i}{\sum_{i=1}^n n_i}$
 - d. none of these
10. The mode of the given data is

15, 14, 19, 20, 14, 15, 16, 14, 15, 18, 14, 19, 15, 17, 15

 - a. 15
 - b. 14
 - c. 16
 - d. 20

11. The construction of a cumulative frequency table is useful in determining the
- Mean
 - Mode
 - Median
 - All the above.
12. If the mean of six observations $x, x + 2, x + 4, x + 6, x + 7$ and $x + 5$ is 11, then the value of x is
- 6
 - 5
 - 7
 - 10
13. The class mark of an interval 90-120 is
- 104
 - 401
 - 501
 - 105
14. The range of the given data: 25, 18, 20, 22, 16, 6, 17, 15, 12, 30, 32, 10, 19, 8, 11, 20 is
- 26
 - 23
 - 25
 - None of these
15. If we are given the following frequency distribution to draw a histogram, then the adjusted frequency for class 45-70 is
- | Class Interval | 5-10 | 10-15 | 15-25 | 25-45 | 45-75 |
|----------------|------|-------|-------|-------|-------|
| Frequency | 6 | 12 | 10 | 8 | 15 |
- 4
 - 3
 - 8
 - None of these
16. If each observation of the data is increased by 7, then their mean
- remains the same.
 - become 7 times the original mean.
 - is decreased by 7.
 - is increased by 7.
17. In a frequency distribution, the mode is 6.54 and the mean is 9.81. The median is
- 9.72
 - 8.72
 - 7.72
 - 7.82
18. If $\sum f_i = 15$, $\sum f_i x_i = 3p + 36$ and the mean of any distribution is 3, then the value of p is
- 2
 - 3
 - 4
 - 5
19. While computing mean of a grouped data, we assume that frequencies are
- evenly distributed over all the classes.
 - centered the upper limit of the classes.
 - centered at the class marks of the classes.
 - centered the lower limit of the classes.
20. The mean of 100 observations is 50. If one of the observations, 50 is replaced by 150, then the resulting mean would be
- 51
 - 50
 - 48
 - 49

SECTION - B : EVERYDAY MATHS

21. In a class of 100 students, the mean marks obtained in a subject is 30 and in another class of 50 students, the mean marks obtained in the same subject is 60. The mean marks obtained by the students of two classes, taken together is
- a. 60 b. 55
c. 40 d. 35
22. The mean weight per student in a group of seven students is 55 kg. If the individual weights of six of them in kg are 52, 54, 55, 53, 56 and 54, then the weight of the 7th student is
- a. 61 kg b. 60 kg
c. 72 kg d. None of these
23. Given the scores (out of 25) of 9 students in a test:
14, 25, 17, 22, 20, 19, 10, 8 and 23
The median score of the data is
- a. 29 marks b. 19 marks

Number of children	Number of families
0	5
1	11
2	25
3	12
4	5
5	2

24. The mean of children per family of the data given below is
- a. 4.12 b. 2.3
c. 3.17 d. 4.17
25. The mean of 36 observations is 12. If Rahul misread 47 as 74, then the correct mean is
- a. 12.25 b. 11.25
c. 13.25 d. None of these

SECTION - C : BRAINBOX

26. Consider the following statements.
- (a) In a bar graph, not only height but also the width of each rectangle matters.
(b) In a bar graph, the height of each rectangle matters and not its width.
(c) In a histogram, the height as well as the width of each rectangle matters.
(d) A bar graph is a two dimensional.
Out of these statements,
- a. (a) is incorrect.
b. (c) is correct.
- c. (b) and (c) are correct.
d. (a) and (d) are correct.
27. There are 50 numbers. Each number is subtracted from 33 and the mean of numbers so obtained is found to be -3.5 . The mean of the given numbers is
- a. 47.5 b. 36.5
c. 56.5 d. None of these

28. Which of following statements is incorrect?
- A frequency polygon of a given frequency distribution is another method of representing frequency distribution graphically.
 - Bar graphs is a method to show data graphically with bars of uniform width.
 - In a histogram, each class rectangle is constructed with base as class intervals.
 - None of these
29. If mean of $x, x + 3, x + 5, x + 7$ and $x + 10$ is 9, then the mean of last three observations is
- $9\frac{4}{5}$
 - $10\frac{1}{2}$
 - $12\frac{1}{3}$
 - 12
30. If x be the mid-point and 1 be the upper class limit of a class in continuous frequency distribution. What is lower limit of class?
- $x - 1$
 - $3x + 8$
 - $2x + 2$
 - $2x - 1$

Darken your choice with HB pencil

- | | | | |
|--|---|---|---|
| 1. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 9. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 17. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 25. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d |
| 2. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 10. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 18. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 26. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d |
| 3. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 11. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 19. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 27. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d |
| 4. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 12. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 20. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 28. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d |
| 5. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 13. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 21. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 29. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d |
| 6. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 14. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 22. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 30. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d |
| 7. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 15. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 23. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | |
| 8. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 16. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | 24. <input type="radio"/> a <input type="radio"/> b <input type="radio"/> c <input type="radio"/> d | |

SECTION - A : MATHEMATICAL REASONING

1. A pair of dice is thrown. The probability of getting a doublet is
 - a. $\frac{1}{6}$
 - b. $\frac{2}{7}$
 - c. $\frac{3}{8}$
 - d. $\frac{5}{9}$
 2. Three coins are tossed at a time. The probability of getting at least 2 heads is
 - a. $\frac{1}{2}$
 - b. $\frac{1}{3}$
 - c. $\frac{1}{4}$
 - d. $\frac{1}{6}$
 3. If the probability of selecting a bulb from a bag is $\frac{1}{3}$ then the probability of not selecting a bulb from the bag is
 - a. $\frac{1}{3}$
 - b. $\frac{2}{3}$
 - c. $\frac{3}{3}$
 - d. cannot say
- Study the given statement carefully and answer Q4 and Q5.**
- The probability that a basketball team wins any game is $\frac{3}{7}$.
4. The probability that the team will loose the game is
 - a. $\frac{2}{7}$
 - b. $\frac{4}{7}$
 - c. $\frac{6}{7}$
 - d. $\frac{8}{7}$
 5. The probability that the team will win only one of the first two games is
 - a. $\frac{24}{49}$
 - b. $\frac{22}{49}$
 - c. $\frac{26}{49}$
 - d. $\frac{28}{49}$
 6. A number is selected at random from first 20 numbers. The probability that a number is a multiple of 3 is
 - a. $\frac{3}{18}$
 - b. $\frac{4}{18}$
 - c. $\frac{5}{18}$
 - d. $\frac{3}{10}$
 7. A pair of dice was rolled 5350 times. A pair of '5's occurred 140 times. What is the empirical probability of a pair of 5's?
 - a. 0.024
 - b. 0.026
 - c. 0.022
 - d. 0.023
 8. There are two children in a family. The probability that one of the children is an elder son is
 - a. 1
 - b. 0
 - c. $\frac{1}{2}$
 - d. None
 9. What is the chance that a leap year should have 53 Fridays?
 - a. $\frac{2}{7}$
 - b. $\frac{1}{53}$
 - c. $\frac{2}{53}$
 - d. $\frac{1}{7}$

10. Odds in favour of a target are 2 : 5 then the probability of success is

- a. $\frac{2}{5}$ b. $\frac{5}{2}$
c. $\frac{2}{7}$ d. $\frac{5}{7}$

11. A card is drawn at random from a well-shuffled pack of 52 cards. The probability that the card drawn is neither a black card nor a king is

- a. $\frac{7}{13}$ b. $\frac{6}{13}$
c. $\frac{1}{13}$ d. $\frac{2}{13}$

Study the given statements carefully and answer Q12 and Q13.

In a cricket match, a batsman hits a boundary 10 times out of 50 balls he plays. The probability that a ball he played

12. hits the boundary is

- a. $\frac{1}{5}$ b. $\frac{1}{2}$
c. $\frac{1}{3}$ d. $\frac{1}{4}$

13. doesn't hit the boundary is

- a. $\frac{1}{5}$ b. $\frac{4}{5}$
c. $\frac{2}{5}$ d. $\frac{3}{5}$

14. In a survey of 200 students, 135 like mathematics and 65 do not like it. The probability that a randomly chosen student likes mathematics is

- a. $\frac{3}{4}$ b. $\frac{35}{42}$
c. $\frac{2}{9}$ d. $\frac{27}{40}$

15. From a deck of 52 cards, Seema selected a card randomly. What is the probability that the card drawn is a prime number?

- a. $\frac{16}{52}$ b. $\frac{14}{9}$
c. $\frac{25}{6}$ d. None of these

Study the given statements carefully and answer Q16 and Q17.

Given below is the frequency distribution table about the concentration of sulphur dioxide in the air in parts per million of a certain city for 30 days.

Concentration of SO ₂	0.00-0.04	0.04-0.08	0.08-0.12	0.12-0.16
Number of days	1	8	9	12

16. The probability of concentration of sulphur dioxide in the interval 0.12-0.16 on any of these days is

- a. 0.4 b. 0.06
c. 0.05 d. 0.03

17. The probability of concentration of sulphur dioxide in the interval 0.00-0.08 on any of these days is

- a. $\frac{12}{30}$ b. $\frac{16}{30}$
c. $\frac{9}{30}$ d. $\frac{4}{30}$

Study the given statements carefully and answer Q18 to Q19.

Two coins are tossed simultaneously 500 times with the following outcomes.

Outcome	No head	One tail	Two heads
Frequency	115 times	290 times	95 times

18. The probability of getting one tail is

a. $\frac{29}{50}$

b. $\frac{23}{100}$

c. $\frac{19}{100}$

d. Non of these

19. The probability of getting no head is

a. $\frac{23}{58}$

b. $\frac{29}{50}$

c. $\frac{23}{100}$

d. $\frac{19}{100}$

20. The probability of getting two heads is

a. $\frac{23}{100}$

b. $\frac{29}{50}$

c. $\frac{77}{100}$

d. $\frac{19}{100}$

SECTION - B : EVERYDAY MATHS

21. There are 600 tickets of a lottery. Out of which, 10 are prize winning tickets. A person buys one ticket. The probability that the ticket bought is not a prize winning ticket is

a. $\frac{1}{6}$

b. $\frac{53}{60}$

c. $\frac{59}{60}$

d. None of these

22. Gori buys a fish from a shop for his aquarium. The shopkeeper takes out one fish at random from a tank containing 5 male fish and 8 female fish. What is the probability that the fish taken out is a male fish?

a. $\frac{5}{13}$

b. $\frac{1}{2}$

c. $\frac{1}{3}$

d. $\frac{6}{13}$

23. Given below is the frequency distribution of wages of 30 workers in a certain factory.

Wage (in ₹)	110-130	130-150	150-170	170-190
No. of workers	13	5	6	6

A worker is selected at random. The probability that his wages are greater than or equal to ₹150 is

a. 0.4

b. 0.36

c. 0.16

d. 0.433

24. A team was to be selected for an international tour, out of 30 teams. What is the probability of a team to be selected?

a. $\frac{1}{30}$

b. $\frac{29}{30}$

c. $\frac{15}{30}$

d. None of these

25. The table given below shows the birth month of 40 students of class X.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
4	3	2	3	5	1	2	5	4	4	4	3

The probability that the student chosen is born in May is

a. 0.125

b. 0.07

c. 0.4

d. 0.5

SECTION - C : BRAINBOX

26. A bag contains 10 red balls and some white balls. If the probability of drawing a white ball is double that of a red ball, then the number of white balls in the bag is
- a. 10 b. 15
c. 20 d. 25

Read the following statement carefully and answer Q27 and Q28.

The record of weather station shows that out of the past 250 consecutive days, its weather forecast were correct 175 times.

27. What is the probability that on a given day it was correct?

- a. 0.7 b. 0.9
c. 0.1 d. none of this

28. What is the probability that on a given day it was incorrect?

- a. 0.4 b. 0.3
c. 0.6 d. 0.7

29. On one page of a telephone directory, there were 200 phone numbers. The frequency distribution of their unit's digit is given in the following table.

Unit's digit	0	1	2	3	4	5	6	7	8	9
Frequency	22	26	22	22	10	20	28	14	16	20

If a number is chosen at random, then the probability that the digit at its units place is a non-zero multiple of 3.

- a. 0.35 b. 0.45
c. 0.50 d. 0.60

30. Read the following statements

Statement 1: When we perform an experiment it is called a trial of the experiment.

Statement 2: An outcome of a trial of an experiment is an elementary event.

Which of the following is the correct option?

- a. Both statements are true.
b. Both statements are false.
c. Statement 1 is true and Statement 2 is false.
d. Statement 1 is false and Statement 2 is true.

Darken your choice with HB pencil

1. a b c d
2. a b c d
3. a b c d
4. a b c d
5. a b c d
6. a b c d
7. a b c d
8. a b c d

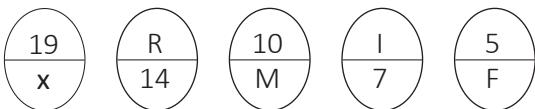
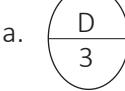
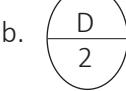
9. a b c d
10. a b c d
11. a b c d
12. a b c d
13. a b c d
14. a b c d
15. a b c d
16. a b c d

17. a b c d
18. a b c d
19. a b c d
20. a b c d
21. a b c d
22. a b c d
23. a b c d
24. a b c d

25. a b c d
26. a b c d
27. a b c d
28. a b c d
29. a b c d
30. a b c d

Logical Reasoning

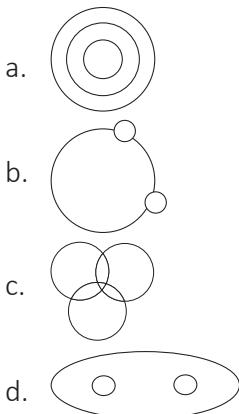
SECTION - A : VERBAL REASONING

1. The units digit of the number $(41287)^{101}$ is
 - a. 1
 - b. 7
 - c. 9
 - d. 8
2. There are 100 boys and 150 girls in a school. The principal wants to divide them in sections such that a section can have only boys or only girls. If all sections should have the same number of students and the principal wants to have as fewer sections as possible. The number of sections in the school is
 - a. 10
 - b. 8
 - c. 7
 - d. 5
3. Rohit is brother of Suman. Anu is sister of Rohit. Vinayak is brother of Priyanka. Priyanka is daughter of Suman. Sachin is father of Anu. Who is uncle of Vinayak?
 - a. Rohit
 - b. Sachin
 - c. Vinayak
 - d. None of these
4. Find the next shape.
 - a. 
 - b. 
 - c. 
 - d. 
5. Read the following statements.

Statement 1: All monkeys are tables.
Statement 2: All boys are monkeys.

Which of the following is the correct conclusion?
 - a. No boy is a table.
 - b. All boys are tables.
 - c. Some tables are boys.
 - d. Some monkeys are boys.
6. 5 teams compete in a track competition. If there are 9 events in the competition, no event ends in a tie, and no team wins more than 2 events, then what is the minimum possible number of teams that won at least one event?
 - a. 2
 - b. 6
 - c. 5
 - d. 8
7. There are 1200 employees in a software company. If there is one manager for every 14 engineers, then the number of engineers in the software Company is
 - a. 1,000
 - b. 1,100
 - c. 1,120
 - d. 1,140
8. Aditya covers a certain distance in a certain time. If $\frac{2}{3}$ of the distance is covered in $\frac{1}{3}$ of the time with speed V_1 and rest of the $\frac{1}{3}$ distance in $\frac{2}{3}$ of the time with speed V_2 , then the ratio $V_1 : V_2$ is
 - a. 1 : 4
 - b. 4 : 1
 - c. 1 : 2
 - d. 1 : 2

9. Which of the following diagrams indicates the best relation between Moon, Sun and Earth?



10. Paw : Cat :: Hoof : ?

- | | |
|---------|-------------|
| a. Lamb | b. Elephant |
| c. Lion | d. Horse |

11. Choose the correct word which is different from the rest.

- a. Decantation
- b. Condensation
- c. Filtration
- d. Centrifugation

12. The sum of ages of Soham, Aditya and Lokesh is 80 years. What was the total of their ages three years ago ?

- | | |
|-------------|-------------|
| a. 71 years | b. 89 years |
| c. 24 years | d. 74 years |

13. Find the next term in the following pattern.

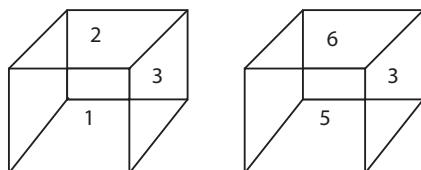
589654237, 89654237, 8965423, 965423, ?

- | | |
|-----------|----------|
| a. 96542 | b. 65423 |
| c. 654237 | d. 89654 |

14. If $N = 1111^2$, then the sum of the digits in the expansion of N is

- | | |
|-------|-------|
| a. 15 | b. 16 |
| c. 14 | d. 10 |

15. Which digit will appear on the face opposite to the face with number 4?



- a. 5
- b. 4
- c. 6
- d. 3

16. Y is in the East of X which is in the North of Z. If P is in the South of Z, then in which direction of Y is P?

- a. North
- b. South-East
- c. South
- d. South-West

17. X, Y, Z, A and B are sitting on a bench. X is sitting next to Y, Z is sitting next to A, A is not sitting with B, who is on left of the bench. Z is on second position from the right. X is to the right of Y and B. X and Z sitting together. In which position X is sitting?

- a. Between Y and Z
- b. Between Y and B
- c. Between A and B
- d. None of these

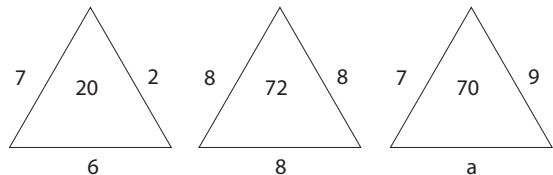
18. A song always has

- | | |
|-----------|-------------|
| a. Word | b. Musician |
| c. Tymtal | d. Chorus |

19. Yesterday I saw an ice cube which had already melted due to heat nearby furnace.

- a. Always
- b. Often
- c. Never
- d. Sometimes

20. Which of the following will replace the letter 'a' of the English alphabet?



- a. 7 b. 8
c. 9 d. 10

21. Look at the series given below.

2, 6, 18, 54, _____. What number should come next?

- a. 108 b. 162
c. 148 d. 200

22. What will come next in the given pattern?

WFB, TGD, QHG, _____

- a. NIK b. PJK
c. ACD d. OIK

23. Which of the following is a prime number?

- a. 81 b. 33
c. 97 d. 100

24. $1497 \times 1497 = ?$

- a. 2241009 b. 41009
c. 2214009 d. None of these

25. Which of the following statements are sufficient to answer the question 1 who is Raj's father?

Statement 1: Ravi and Arjit are brothers

Statement 2: Arjit's wife is sister of Raj's wife

- a. Statement 2 alone is sufficient to answer this problem.
b. Statement 1 alone is sufficient to answer the problem.
c. Both the statements are not sufficient.
d. Statements 1 and 2 both are needed.

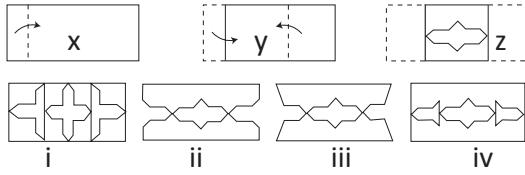
SECTION - B : NON-VERBAL REASONING

26. Choose the correct alternative which closely resembles the mirror image of the given combination.

TARAIN1014A

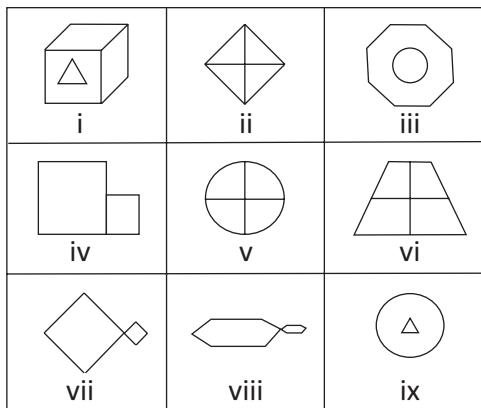
- | | |
|------------------------|---------------------|
| i. A#T#A#N#I#T#A#T | ii. A#T#A#N#I#T#A#T |
| iii. A#I#T#A#N#I#T#A#I | iv. A#T#A#N#I#T#A#T |
| a. i | b. ii |
| c. iii | d. iv |

27. Choose the correct figure which closely resembles the unfolded form of figure(Z).



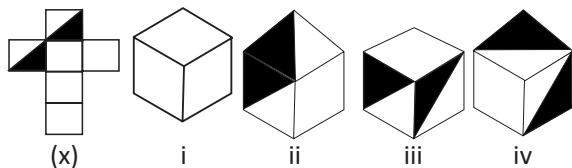
- a. 1 b. 2
c. 3 d. 4

28. Group the given figures into three classes using each figure only once.



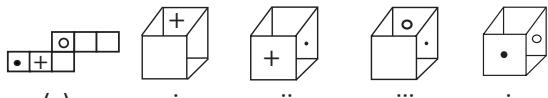
- a. i, iii, ix; ii, v, vi; iv, vii, viii
b. i, iii, ix; ii, vii, viii; iv, v, vi
c. i, ii, iv; iii, v, vii; vi, viii, ix
d. i, iii, vi; ii, iv, viii; v, vii, ix

29. Choose the box that is similar to the box formed from the given sheet of paper (x).



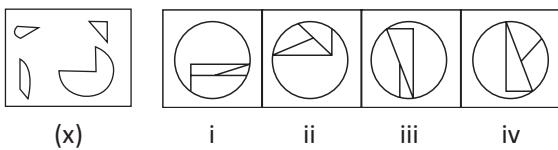
- a. i and iv only
- b. ii and iii only
- c. i and iii only
- d. None of these

30. Choose the box that is similar to the box formed from the given sheet of paper (x).



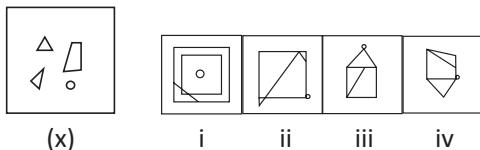
- a. i
- b. ii
- c. iii
- d. All of these

31. Which of the following figures i, ii, iii and iv can be formed from the pieces given in figure (x).



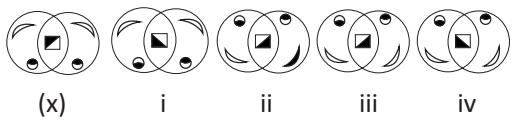
- a. i
- b. ii
- c. iii
- d. iv

32. Which of the following figures i, ii, iii and iv can be formed from the pieces given in figure (x).



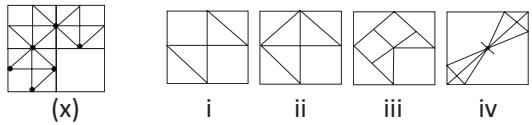
- a. i
- b. ii
- c. iii
- d. iv

33. Choose the correct water image of the given figure (x) from amongst the four alternatives.



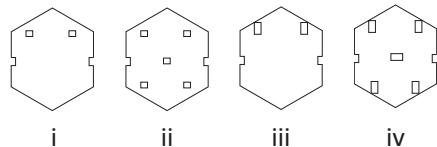
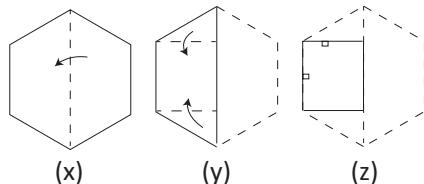
- a. i
- b. ii
- c. iii
- d. iv

34. Identify from the given figures that completes the pattern given in (x).



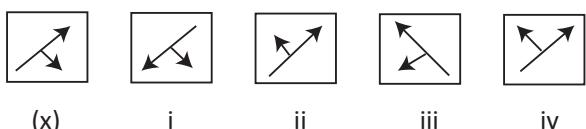
- a. i
- b. ii
- c. iii
- d. iv

35. Choose a figure which would most closely resemble the unfolded form of figure (z).



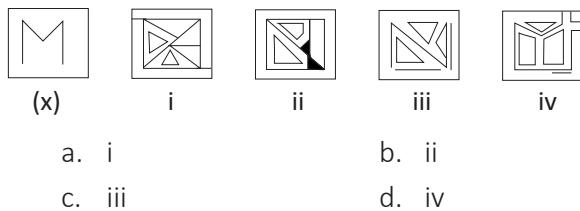
- a. i
- b. ii
- c. iii
- d. iv

36. Choose the correct mirror image of the given figure (x) from amongst the four alternatives.



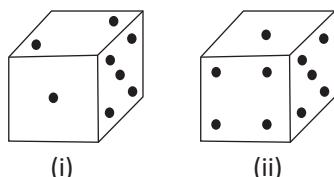
- a. i
- b. ii
- c. iii
- d. iv

37. Choose the alternative figure which contains figure (x) as its part.



- a. i
- b. ii
- c. iii
- d. iv

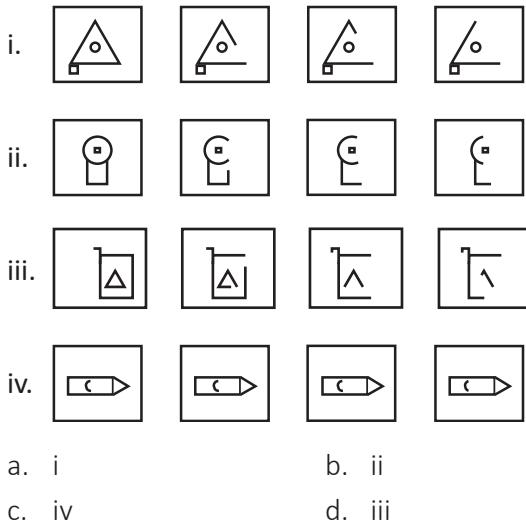
38. Observe the dots on the dice given below. How many dots are there on the face opposite to the face containing four dots?



- a. 2
- b. 4
- c. 6
- d. 3

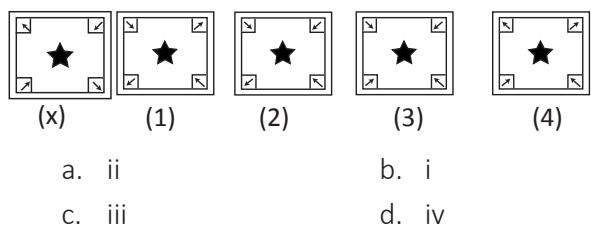
39. Choose the set of figures which does not follow the given rule.

Rule: Closed figure become more and more open, open figure become more and more close.



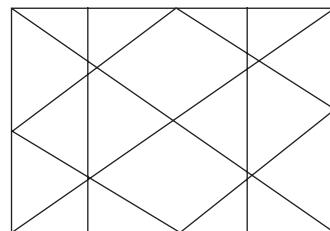
- a. i
- b. ii
- c. iv
- d. iii

40. How will the key figure (x) look like after rotation?



- a. ii
- b. i
- c. iii
- d. iv

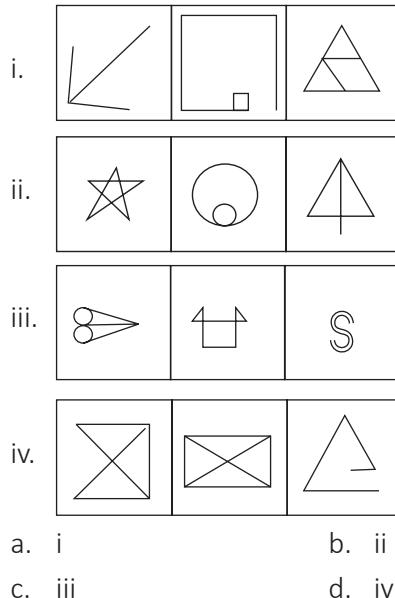
41. The minimum number of straight lines to make the following figure is



- a. 12
- b. 13
- c. 15
- d. 16

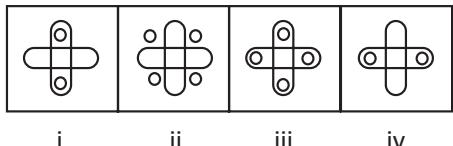
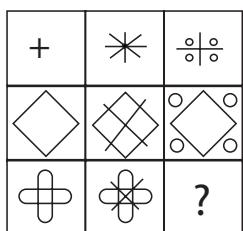
42. Choose the set of figures which follows the given rule.

Rule: Any figure can be traced by a single unbroken line without retracting.



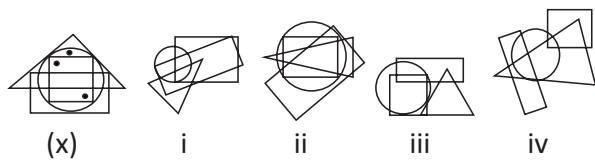
- a. i
- b. ii
- c. iii
- d. iv

43. Select a suitable figure from the four alternatives that would complete the figure matrix.



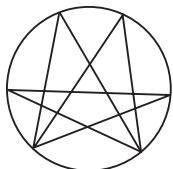
- a. i
- b. ii
- c. iii
- d. iv

44. Select the figure which satisfies the same conditions of placement of the dots as in figure x



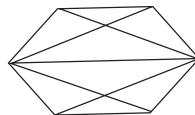
- a. i
- b. ii
- c. iii
- d. iv

45. The number of triangles in the given figure is



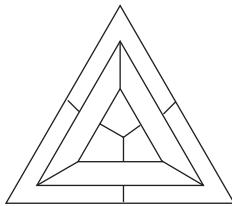
- a. 22
- b. 26
- c. 27
- d. 28

46. The number of quadrilaterals in the given figure is



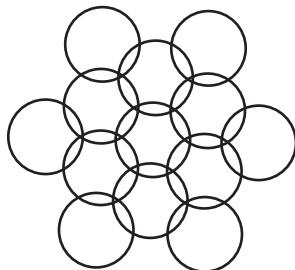
- a. 11
- b. 6
- c. 9
- d. 5

47. What is the minimum number of colours required to fill the space in the given diagram without any two adjacent space having the same colour?



- a. 2
- b. 6
- c. 3
- d. 5

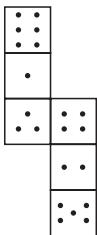
48. How many circles are there in the adjoining figure?



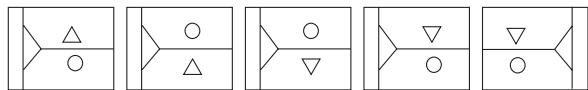
- a. 11
- b. 15
- c. 18
- d. 13

49. How many dots lie opposite to the face having three dots, when the given figure is folded to form a cube?

- a. 2
- b. 4
- c. 5
- d. 6



50. Choose the correct water image of the given figure (x) from amongst the four alternatives.



- (x)
- i
- ii
- iii
- iv

Darken your choice with HB pencil

- | | | | | | | | | | | | | | | | |
|-----------------------------|-------------------------|-------------------------|-------------------------|-----------------------------|-------------------------|-------------------------|-------------------------|-----------------------------|-------------------------|-------------------------|-------------------------|-----------------------------|-------------------------|-------------------------|-------------------------|
| 1. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 14. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 27. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 40. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d |
| 2. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 15. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 28. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 41. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d |
| 3. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 16. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 29. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 42. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d |
| 4. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 17. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 30. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 43. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d |
| 5. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 18. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 31. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 44. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d |
| 6. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 19. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 32. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 45. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d |
| 7. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 20. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 33. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 46. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d |
| 8. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 21. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 34. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 47. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d |
| 9. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 22. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 35. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 48. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d |
| 10. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 23. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 36. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 49. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d |
| 11. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 24. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 37. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 50. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d |
| 12. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 25. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 38. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | | | | |
| 13. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 26. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | 39. <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d | | | | |

Answers

Chapter 1: Number System

1.	b	2.	a	3.	a	4.	d	5.	a	6.	b	7.	b	8.	c	9.	b	10.	b
11.	c	12.	d	13.	c	14.	c	15.	c	16.	a	17.	a	18.	b	19.	c	20.	a
21.	b	22.	c	23.	d	24.	b	25.	a	26.	b	27.	d	28.	a	29.	b	30.	c

Chapter 2: Polynomials

1.	d	2.	a	3.	a	4.	b	5.	a	6.	b	7.	c	8.	a	9.	c	10.	a
11.	b	12.	c	13.	d	14.	a	15.	a	16.	a	17.	a	18.	b	19.	a	20.	b
21.	a	22.	c	23.	a	24.	b	25.	c	26.	c	27.	a	28.	b	29.	a	30.	c

Chapter 3: Co-ordinate Geometry

1.	a	2.	c	3.	a	4.	a	5.	c	6.	b	7.	a	8.	a	9.	d	10.	a
11.	a	12.	b	13.	a	14.	d	15.	a	16.	d	17.	a	18.	c	19.	a	20.	a
21.	b	22.	b	23.	a	24.	a	25.	b										

Chapter 4: Linear Equations in Two Variables

1.	a	2.	a	3.	c	4.	c	5.	b	6.	b	7.	c	8.	a	9.	b	10.	b
11.	a	12.	d	13.	b	14.	b	15.	a	16.	c	17.	b	18.	b	19.	b	20.	d
21.	a	22.	a	23.	b	24.	a	25.	b	26.	b	27.	b	28.	a	29.	a	30.	b

Chapter 5: Euclid's Geometry

1.	a	2.	a	3.	b	4.	c	5.	c	6.	d	7.	b	8.	c	9.	a	10.	c
11.	c	12.	a	13.	a	14.	b	15.	a	16.	c	17.	a	18.	c	19.	c	20.	c
21.	a	22.	d	23.	a	24.	b	25.	a	26.	c	27.	c	28.	c	29.	d	30.	c

Chapter 6: Lines, Angles and Triangles

1.	b	2.	a	3.	c	4.	c	5.	a	6.	d	7.	b	8.	a	9.	b	10.	a
11.	a	12.	d	13.	b	14.	a	15.	b	16.	c	17.	a	18.	b	19.	a	20.	b
21.	b	22.	b	23.	a	24.	d	25.	b	26.	d	27.	c	28.	a	29.	d	30.	a

Chapter 7: Quadrilaterals

1.	c	2.	a	3.	a	4.	b	5.	a	6.	b	7.	b	8.	a	9.	a	10.	d
11.	a	12.	a	13.	a	14.	a	15.	a	16.	a	17.	a	18.	b	19.	a	20.	a
21.	a	22.	a	23.	a	24.	b	25.	b	26.	a	27.	b	28.	a	29.	c	30.	a

Chapter 8: Areas of Triangles and Parallelograms

1.	a	2.	c	3.	a	4.	a	5.	b	6.	d	7.	c	8.	c	9.	c	10.	a
11.	c	12.	b	13.	b	14.	c	15.	c	16.	a	17.	c	18.	d	19.	a	20.	a
21.	a	22.	c	23.	c	24.	c	25.	d	26.	a	27.	c	28.	c	29.	a	30.	b

Chapter 9: Circles

1.	a	2.	a	3.	c	4.	c	5.	b	6.	d	7.	a	8.	a	9.	b	10.	c
11.	b	12.	b	13.	c	14.	a	15.	d	16.	a	17.	a	18.	b	19.	b	20.	c
21.	b	22.	c	23.	a	24.	a	25.	b	26.	a	27.	c	28.	a	29.	a	30.	d

Chapter 10: Constructions

1.	c	2.	a	3.	b	4.	c	5.	b	6.	b	7.	c	8.	a	9.	b	10.	a
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Chapter 11: Heron's Formula

1.	d	2.	a	3.	c	4.	c	5.	b	6.	b	7.	a	8.	c	9.	b	10.	a
11.	a	12.	b	13.	b	14.	a	15.	d	16.	c	17.	d	18.	a	19.	a	20.	b
21.	b	22.	c	23.	b	24.	b	25.	a	26.	b	27.	b	28.	d	29.	a	30.	c

Chapter 12: Surface Areas and Volumes

1.	b	2.	a	3.	b	4.	b	5.	a	6.	a	7.	c	8.	a	9.	b	10.	d
11.	d	12.	a	13.	b	14.	c	15.	c	16.	d	17.	a	18.	b	19.	c	20.	b
21.	b	22.	c	23.	a	24.	a	25.	d	26.	b	27.	d	28.	a	29.	c	30.	a

Chapter 13: Statistics

1.	b	2.	c	3.	a	4.	c	5.	d	6.	c	7.	b	8.	c	9.	c	10.	a
11.	d	12.	c	13.	d	14.	a	15.	b	16.	d	17.	b	18.	b	19.	c	20.	a
21.	c	22.	a	23.	b	24.	b	25.	b	26.	c	27.	c	28.	d	29.	c	30.	d

Chapter 14: Probability

1.	a	2.	a	3.	b	4.	b	5.	a	6.	d	7.	b	8.	c	9.	a	10.	c
11.	b	12.	a	13.	b	14.	d	15.	a	16.	a	17.	c	18.	a	19.	c	20.	d
21.	c	22.	a	23.	a	24.	a	25.	a	26.	c	27.	a	28.	b	29.	a	30.	a

Chapter 15: Logical Reasoning

1.	b	2.	d	3.	a	4.	c	5.	b	6.	c	7.	c	8.	b	9.	c	10.	d
11.	b	12.	a	13.	a	14.	b	15.	d	16.	d	17.	a	18.	a	19.	c	20.	a
21.	b	22.	a	23.	c	24.	a	25.	c	26.	d	27.	b	28.	a	29.	a	30.	d
31.	c	32.	c	33.	d	34.	b	35.	c	36.	c	37.	a	38.	a	39.	c	40.	b
41.	a	42.	b	43.	b	44.	b	45.	d	46.	a	47.	c	48.	d	49.	d	50.	b

My Notes

My Notes
