LOGICAL REASONING
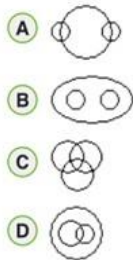
1 Arrange the words given below in a meaningful sequence.

   1. Word   2. Paragraph   3. Sentence
   4. Letters 5. Phrase

   (A) 4, 1, 5, 2, 3

   (B) 4, 1, 3, 5, 2

   (C) 4, 2, 5, 1, 3

   (D) 4, 1, 5, 3, 2

2 Which of the following diagrams indicates the best relation between Profit, Dividend and Bonus ?

   (A)

   (B)

   (C)

   (D)

3 ˈ A is the brother of B; B is the sister of C; and C is the father of D, how D is related to A?

   (A) Brother

   (B) Sister

   (C) Nephew

   (D) Cannot be determined

4 Choose the alternative which is closely resembles the mirror image of the given combination.
   TARA I N1014A
   (1) A⅃⅄0ⁱИI AЯAⱢ   (2) A⅄0ⁱⱣИI AЯAT
   (3) A⅄0ⁱⱣTAЯAIИ   (4) A⅄⅄0ⁱИI AЯAT

   (A) 1

   (B) 2

   (C) 3

   (D) 4

5 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

(C) South-East

(D) None of these

MATHEMETICS

6. How many of the following sums are correct?
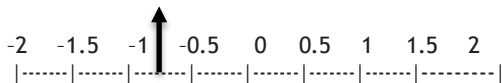
   1. $(-3) + 4 = 1$
   2. $(-5) + (-2) = -7$
   3. $(-6) + 8 = 3$
   4. $(-4) + (-4) = -8$

   a) 2   b) 3   c) 4   d) 1

7. Which of these pairs are equivalent rational numbers?

   a) 2/5 and 3/5   b) –3/4 and –6/8
   c) 4/7 and 8/7   d) –1/2 and –2/5

8. Diagram-based:

   ```
   -2   -1.5   -1  -0.5   0   0.5   1   1.5   2
   |-------|-------|-------|-------|-------|-------|-------|---------|
   ```

   Which of the following is true about the marked point?

   a) It lies to the right of 0
   b) It is closer to –1 than to 0
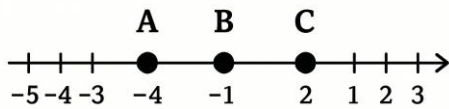   c) It is a whole number
   d) It is equal to 3/4

9. Match the following:

Expression	Result
1. 1/2 ÷ 1/4	a. 2
2. –2/3 × 3/4	b. –1/2
3. 3/5 + (–1/5)	c. 2/5

   a) 1-a, 2-b, 3-c
   b) 1-b, 2-c, 3-a
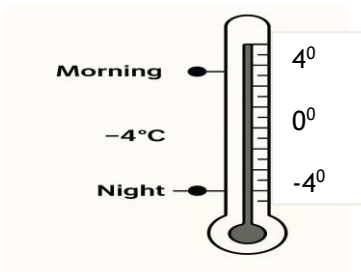   c) 1-a, 2-c, 3-b
   d) 1-c, 2-a, 3-b

10. Diagram-based:

1. Point A at −4
2. Point B at −1
3. Point C at +2

Which of the following is true?

a) Distance from A to B is 2
b) A is closer from 0 than C
c) B is closer to 0 than A
d) A is the greatest number

11. Diagram-based:

What is the difference between the highest and lowest temperature?

a) 5°C   b) -8°C   c) 8°C   d) 6°C

12. How many of the following expressions are equal to 1?
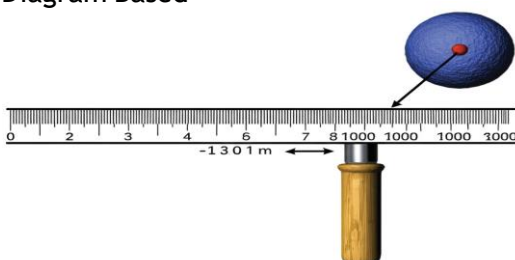
1. 5^0
2. $(3/4)^2$
3. 2^{-1}
4. $(1/2)^0$

a) 1   b) 2   c) 3   d) 4

13. Express $3^2 / 3^5$ in exponent form:

a) 3^{-3}
b) 3^7
c) 3^3
d) 3^{-2}

14. Diagram Based

Which of the following is its standard form?

a) 1×10^{-9}
b) 1×10^{-10}
c) 1×10^{-11}
d) 1×10^{-8}

15. Find the unknown:

If $5x = 125$, then $x = ?$

a) 2   b) 3   c) 20   d) 25

16. Match the following:

Expression Value

1. 10^{-3} a. 0.01
2. 10^{-2} b. 0.001
3. 10^{-1} c. 0.1

a) 1-b, 2-a, 3-c
b) 1-a, 2-b, 3-c
c) 1-c, 2-a, 3-b
d) 1-b, 2-c, 3-a

17. How many of the following fractions are equivalent to $3/4$

1. $6/8$ 2. $12/16$
3. $9/12$ 4. $15/20$

a) 1   b) 2   c) 3   d) 4

18. How many decimals are equivalent to $1/2$?

1. 0.2
2. 0.5
3. 0.50
4. 0.25

a) 1   b) 2   c) 3   d) 4

19. Which of these decimals is in ascending order?

a) 0.9, 0.12, 0.45
b) 0.21, 0.19, 0.5
c) 0.11, 0.13, 0.14
d) 0.5, 0.3, 0.7

20. Which of the following pairs are equivalent?

    a) 0.75 = 3/5   b) 0.25 = 1/3
    c) 0.2 = 1/5   d) 0.4 = 3/5

21. Match the following:

Decimal	Fraction Equivalent
1. 0.6	a. 3/5
2. 0.75	b. 3/4
3. 0.2	c. 1/4

    a) 1-a, 2-b, 3-c
    b) 1-b, 2-a, 3-c
    c) 1-c, 2-b, 3-a
    d) 1-a, 2-c, 3-b

22. Riya bought 2.4 kg of rice and 1.65 kg of wheat. How much grain did she buy in total?

    a) 4.05 kg   b) 3.95 kg
    c) 4.15 kg   d) 5.15 kg

23. How many of the following are in the same ratio as 2:3?

    1. 4:6
    2. 8:10
    3. 10:15
    4. 6:9

    a) 1   b) 2   c) 3   d) 4

24. Diagram-based:

    What is the ratio of red to total marbles?
    a) 1:2   b) 5:16   c) 5:11   d) 1:1

25. How many ratios below are equivalent to?1:2

    1. 2:4
    2. 3:6
    3. 5:10
    4. 6:12

    a) 2   b) 3   c) 4   d) 1

26. If A:B = 4:5 and B:C = 2:3, what is the ratio A:C?

    a) 8:15   b) 4:6   c) 2:5   d) 5:8

27. If a class has 20 boys and 10 girls, what percent of the class are boys?
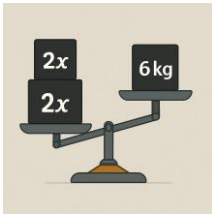
    a) 20%   b) 50%   c) 66.67%   d) 75%

28. How many of the following are algebraic expressions?

    1. $3x + 4$
    2. $7{-}2$
    3. $a^2 - 5a + 6$
    4. $10 \div 2$

    a) 1   b) 2   c) 3   d) 4

29. Diagram-based:

    What is the value of x?

    a) 2   b) 3   c) 3/2   d) 6

30. Match the following:

Expression	Type
1) $5x - 3$	a. Binomial
2) $2a^2 + 3a - 1$	b. Trinomial
3) 7	c. Constant

    a) 1-a, 2-b, 3-c
    b) 1-b, 2-a, 3-c
    c) 1-c, 2-b, 3-a
    d) 1-a, 2-c, 3-b

31. Remove brackets and simplify:

    $2(3x + 5) - 4$

    a) $6x + 10$ b) $6x + 6$
    c) $6x + 4$ d) $6x + 1$

32. How many of the following values satisfy x+2=7?

    1. $x = 3$
    2. $x = 5$
    3. $x = 6$
    4. $x = 2$

    a) 1   b) 2   c) 3   d) 4

33. Diagram-based:

What value of x balances the scale?

a) 3   b) 4   c) 5   d) 6

34. Which of the following equations is not true when x = 3?

a) x + 2 = 5
b) 2x = 6
c) x − 4 = −1
d) x^2 = 12

35. How many values of x satisfy the inequality x − 3 < 4?

1. x = 1
2. x = 5
3. x = 6
4. x = 7

a) 1   b) 2   c) 3   d) 4

36. Match the following:

Equation/Inequality Solution

x+4=9x + 4 = 9   a. x=5x = 5

2x=102x = 10   b. x=5x = 5

x−2<3x - 2 < 3   c. x<5x < 5

Options:

a) 1-a, 2-b, 3-c
b) 1-c, 2-a, 3-b
c) 1-b, 2-a, 3-c
d) 1-b, 2-c, 3-a
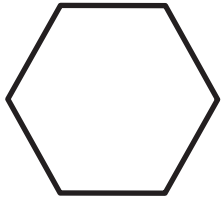
37. The perimeter of a rectangle is 2(l + b). If length = x and breadth = 3, and perimeter = 20, find x.

a) 7   b) 8   c) 9   d) 10

38. Which of the following letters has both horizontal and vertical lines of symmetry?

    a) H　　　　　b) A　　　　　c) X　　　　　d) B

39. Observe the figure below. How many lines of symmetry does this have?

    a) 3　　　　　b) 6　　　　　c) 12　　　　　d) 0

40. Identify which of the following have at least one line of symmetry:

    i) Equilateral triangle
    ii) Scalene triangle
    iii) Isosceles triangle
    iv) Rectangle

    a) 2　　　　　b) 3　　　　　c) 1　　　　　d) 4

41. Which of the following statements is incorrect?

    a) A circle has infinite lines of symmetry
    b) A rhombus has 2 lines of symmetry
    c) A square has 2 lines of symmetry
    d) An isosceles triangle has only one line of symmetry

42. A student says: "The sum of angles on a straight line is always $180°$, no matter how m rays come from the point." Is this correct?

    a) Yes, because all angles at a point on a line form a straight angle
    b) No, because it can be more than $180°$
    c) Yes, because supplementary angles can exceed $180°$
    d) No, only vertically opposite angles are $180°$

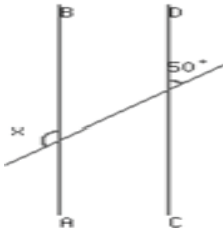43. Match the angle pairs with their properties:

a) Linear pair	1. Add up to $180°$
b) Vertically opposite	2. Equal and opposite
c) Corresponding angles	3. Equal when lines are parallel
d) Complementary angles	4. Add up to $90°$

    a) a-1, b-2, c-3, d-4
    b) a-2, b-1, c-4, d-3
    c) a-4, b-3, c-2, d-1
    d) a-1, b-3, c-2, d-4

44. Two supplementary angles are in the ratio 1:2. What are the angles?

   a) 90°, 90°   b) 60°, 120°
   c) 100°, 80°   d) 70°, 110

45. If AB and CD are parallel, then the value of < x is _____°

   a) 130°   b) 50°   c) 80°   d) 110°

46. A triangle has two angles measuring 60° and 50°. What is the third angle?

   a) 60°   b) 70°   c) 80°   d) 90°

47. Which of these can never be the sides of a triangle?

   a) 3 cm, 4 cm, 5 cm
   b) 6 cm, 2 cm, 3 cm
   c) 5 cm, 5 cm, 5 cm
   d) 7 cm, 8 cm, 9 cm

48. A rectangular garden has a perimeter of 54 meters. The length is 15 meters longer than its breadth. What is the area of the garden?

   a) 300 m²   b) 125 m²   c) 126 m²   d) 400 m²

49. A right-angled triangle has sides of length 12 cm, 16 cm, and the hypotenuse. What is the area of the triangle?

   a) 72 cm²   b) 96 cm²   c) 144 cm²   d) 192 cm²

50. A circle has a circumference of 44 cm. What is its area?

   a) 154 cm²   b) 184 cm²   c) 308 cm²   d) 500 cm²

Answer Key

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