



RAMAGYA SCHOOL, NOIDA

X/ MATHEMATICS/2017-18

OLYMPIAD PRACTICE WORKSHEET

Section-1 - Logical Reasoning (Application based questions)

1. A and B can complete a work in 15 days and 10 days respectively. They started doing the work together but after 2 days B had to leave and A alone completed the remaining work. The whole work was completed in

- (a) 8 (b) 10 (c) 12 (d) 15

2. A Shopkeeper has two types of rice of Rs 20/kg and Rs. 30/kg. In what ratio should he mix both these varieties to make the mixture worth Rs. 26/kg

- (a) 2:3 (b) 3:4 (c) 4:5 (d) 1:2

3. Excluding stoppages, the speed of a bus is 54 kmph and including stoppages, it is 45 kmph. For how many minutes does the bus stop per hour?

- (a) 10 (b) 12 (c) 14 (d) 15

4. If the price of petrol increases by 25% and Raj intends to spend only an additional 15% on petrol, by how much % will he reduce the quantity of petrol purchased?

- (a) 10% (b) 1.25% (c) 6.6% (d) 8%

Section-2 : Mathematical Reasoning

Concept based questions:

5. Which of the following is not a linear equation

- (a) $x + y = 6$ (b) $x^2 - 5x + 6 = 0$
(c) $y = 2x$ (d) $x = 0$

6. $x=2, y=3$ is a solution of the linear equation

- (a) $2x + 3y = 13$ (b) $3x + 2y = 31$
(c) $2x - 3y = -13$ (d) $2x + 3y = -13$

7. The point of intersection of the lines represented by $(3x - 2y = 6)$ and the y-axis is

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

8. The pair satisfying $(2x + y = 6)$ is

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

9. Which of the following is not a solution of the equation: $(2x + 3y = 5)$

- (a) $x = 1, y = 1$ (b) $x = -2, y = 3$
(c) $x = 4, y = -1$ (d) $x = 1, y = 7$

10. What will be the solution of these equations: $(ax + by = a - b), (bx - ay = a + b)$

- (a) $x = 1, y = 2$ (b) $x = 2, y = -1$
(c) $x = -2, y = -2$ (d) $x = 1, y = -1$

Value based questions:

11. 8 girls and 12 boys can finish work in 10 days while 6 girls and 8 boys can finish it in 14 days. Find the time taken by the one girl alone that by one boy alone to finish the work.

- (a) 120, 130 (b) 140,280 (c) 240,280 (d) 100,120

12. If the unit and tens digit of a number are y and x respectively, then the number will be
 (a) $10x+y$ (b) $10y+x$ (c) $x+y$ (d) xy
13. Five years ago, A was thrice as old as B and ten years later, A shall be twice as old as B. What is the present age of A.
 (a) 20 (b) 50 (c) 60 (d) 40
14. If $x=a$, $y=b$ is the solution of the pair of equation $x-y=2$ and $x+y=4$ then what will be value of a and b
 (a) 2,1 (b) 3,1 (c) 4,6 (d) 1,2
15. Rozy can row downstream 20km in 2 hours, and the upstream 4km in 2 hours. What will be the speed of rowing in still water (in km/hr)?
 (a) 6 (b) 4 (c) 3 (d) 7

HOTS based questions:

16. Customers are asked to stand in the lines. If one customer is extra in a line, then there would be two less lines. If one customer is less in line, there would be three more lines. Find the number of students in the class.
 (a) 40 (b) 50 (c) 60 (d) 70
17. The sum of two digits and the number formed by interchanging its digit is 110. If ten is subtracted from the first number, the new number is 4 more than 5 times of the sum of the digits in the first number. Find the first number.
 (a) 46 (b) 48 (c) 64 (d) 84
18. The solution of the equations

$$\frac{x}{a} + \frac{y}{b} = 2$$

- $ax - by = a^2 - b^2$ is
- (a) $x = a, y = b$ (b) $x = -a, y = -b$
 (c) $x = a, y = -b$ (d) $x = -a, y = b$

19. The solution of the pair of equations:

$$(\sqrt{2}x + \sqrt{3}y = 0), (\sqrt{3}x - \sqrt{8}y = 0) \text{ is}$$

- (a) $x = 1, y = 0$ (b) $x = 0, y = 0$
 (c) $x = 0, y = 1$ (d) $x = 1, y = 1$

20. The value of k for which the system of linear equations

$$[(K - 3)x + 3y = k], (kx + ky = 12)$$

has infinite number of solutions is

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