



RAMAGYA SCHOOL, NOIDA
XI/MATHS/2017-18
OLYMPIAD PRACTICE WORKSHEET

Section-1 - Logical Reasoning

(Application based questions)

1. A machine P can print one lakh books in 8 hours, machine Q can print the same number of books in 10 hours while machine R can print them in 12 hours. All the machines are started at 9 A.M. while machine P is closed at 11 A.M. and the remaining two machines complete work. Approximately at what time will the work (to print one lakh books) be finished?

(a) 11:30 AM (b) 12 Noon (c) 12.30 PM (d) 1:00 PM

2. Sameer spends 24% of his monthly income on food and 15% on the education of his children. Of the remaining salary, he spends 25% on entertainment and 20% on conveyance. He is now left with Rs. 10736. What is the monthly salary of Sameer?

(a) 27600 (b) 28000 (c) 31200 (d) 32000

3. In an election between two candidates, 75% of the voters cast their votes, out of which 2% of the voters were declared in-valid. A candidate got 9261 votes which were 75% of the total valid votes. The total number of voters enrolled in that election was:

(a) 16000 (b) 16400 (c) 16800 (d) 18000

4. Yogesh started a business investing Rs. 45000. After 3 months, Pranab joined him with a capital of Rs. 60000. After another 6 months, Atul joined them with a capital of Rs. 90000. At the end of the year, they made a profit of Rs. 20000. What would be Atul's share in it?

(a) Rs 7000 (b) Rs 6000 (c) Rs 5000 (d) Rs 4000

5. Four horses are tied on the four corners of a square field of 14m length so that each horse can just touch the other two horses. They were able to graze in the area accessible to them for 11 days. For how many days is the ungrazed area sufficient for them?

(a) 3 days (b) 4 days (c) 5 days (d) 2 days

Section-2: Mathematical Reasoning

Concept based questions:

6. What is the n th term in the arithmetic series $(3+7+11+15+19+\dots)$

(a) $4n$ (b) $4n+3$ (c) $4n-1$ (d) $2n+1$

7. If 3 times the third term of an A.P. is equal to 5 times the fifth term. Then its 8th term is

(a) 0 (b) 1 (c) 2 (d) 3

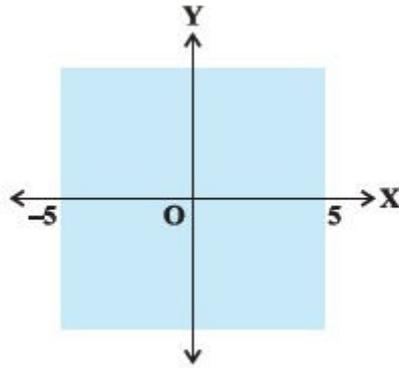
8. If 1, a and P are in A. P. and 1, g and P are in G. P., then

- (a) $1 + 2a + g^2 = 0$ (b) $1 - 2a - g^2 = 0$
(c) $1 - 2a + g^2 = 0$ (d) $1 + 2a - g^2 = 0$

9. Given that x, y and b are real numbers and $x < y$, $b < 0$, then

- (a) $\frac{x}{b} < \frac{y}{b}$ (b) $\frac{x}{b} \leq \frac{y}{b}$ (c) $\frac{x}{b} > \frac{y}{b}$ (d) $\frac{x}{b} \geq \frac{y}{b}$

10. The inequality representing the following graph is



- (a) $|x| < 5$ (b) $|x| \leq 5$ (c) $|x| > 5$ (d) $|x| \geq 5$

Value based questions:

11. A plumber can be paid under two schemes as given below:

I: Rs 600 and Rs 50 per hour.

II: Rs 170 per hour.

If the job takes n hours, then the values of n for which the scheme I will give the plumber better wages are

- (a) less than 4 hours (b) less than 5 hours
(c) more than 5 hours (d) 4 hours

12. The sum of the series $1^2 - 2^2 + 3^2 - 4^2 \dots$ is:

- (a) 1225 (b) -1525 (c) 425 (d) 925

13. If the first, second and last term of an A.P. are a, b and 2a respectively, its sum is

- (a) $\frac{ab}{2(b-a)}$ (b) $\frac{ab}{b-a}$
(c) $\frac{3ab}{2(b-a)}$ (d) none of these

14. In the first four examinations, each of 100 marks, Dipika got 94, 73, 72, 84 marks. If a final average greater than or equal to 80 and less than 90 is needed to obtain a final grade B in a course, then the range of marks, Dipika must score in the fifth examination in order to obtain grade B is

- (a) $77 < x < 127$ (b) $77 \leq x < 100$ (c) $77 \leq x < 127$ (d) $77 < x < 127$

