



RAMAGYA SCHOOL, NOIDA
X/MATHS/2018-19
OLYMPIAD PRACTICE WORKSHEET

(Concept based)

1. If one zero of $f(x) = (k^2 + 4)x^2 + 13x + 4k$ is reciprocal of the other than $k =$
(a) 2 (b) -2 (c) 1 (d) -1
2. If the product of the zeroes of the polynomial $f(x) = ax^3 - 6x^2 + 11x - 6$ is 4 then $a =$
(a) $3/2$ (b) $-3/2$ (c) $2/3$ (d) $-2/3$
3. If the altitude of the sun is at 30° , then the height of the vertical tower that will cast a shadow of length 30m is
(a) $30\sqrt{3}m$ (b) $\frac{30}{\sqrt{3}}m$ (c) 15m (d) none of these
4. If two zeroes of $x^3 + x^2 - 5x - 5$ are $\sqrt{5}$ and $-\sqrt{5}$ then its third zero is
(a) 0 (b) -1 (c) 2 (d) -2
5. The value of k for which the system of equations $kx - y = 2$ and $6x - 2y = 3$ has unique solution, is
(a) = 3 (b) $\neq 3$ (c) $\neq 0$ (d) = 0

(Application based)

6. If a digit is chosen at random from digits 1, 2, 3, 4, 5, 6, 7, 8, 9 then the probability of getting an odd digit is
(a) $\frac{4}{9}$ (b) $\frac{5}{9}$ (c) $\frac{1}{9}$ (d) $\frac{2}{3}$
7. If three coins are tossed simultaneously, then probability of getting at most two tails is
(a) $\frac{1}{4}$ (b) $\frac{3}{8}$ (c) $\frac{1}{8}$ (d) none of these
8. Area of triangle formed by the lines $y = x$, $x = 6$ and $y = 0$ is
(a) 36 square units (b) 18 square units (c) 9 square units (d) 72 square units
9. The probability of throwing a number greater than 3 with a fair dice is _____
(a) $\frac{1}{2}$ (b) $\frac{2}{5}$ (c) $\frac{2}{3}$ (d) $\frac{1}{3}$

10. A card is accidentally dropped from a pack of 52 playing cards. The probability that it is an ace or black is

- (a) $\frac{1}{4}$ (b) $\frac{1}{13}$ (c) $\frac{7}{13}$ (d) $\frac{12}{13}$

(Value based)

11. The sum of the digits of a two digits number is 9. If 27 is added to it, the digits of the number get reversed. The number is

- (a) 25 (b) 72 (c) 63 (d) 36

12. The LCM of two numbers is 1200. Which of the following cannot be their HCF?

- (a) 400 (b) 600 (c) 200 (d) 500

13. If $\operatorname{cosec}\theta - \sin\theta = l$ and $\sec\theta - \cos\theta = m$, then $l^2m^2(l^2 + m^2 + 3) =$

- (a) 2 (b) $2\sin\theta$ (c) 1 (d) $\sin\theta\cos\theta$

14. A boat goes 32km upstream and 36km downstream in 7 hours. In 9 hours, it can go 40 km upstream and 48 km downstream. If x represents the speed of the boat in still water in km/hr and y represents the speed of stream in km/hr, then

- (a) $x + y = 12, x - y = 8$ (b) $x + y = 5, x - y = 11$ (c) $x + y = 6, x - y = 10$ (d) $x + y = 10, x - y = 6$

15. An AP consists of 21 terms. The sum of 3 terms in the middle is 129 and of the last three is 237, find the AP

- (a) 4, 8, 12, 16 (b) 3, 6, 9, 12 (c) 4, 7, 10, 13 (d) 3, 7, 11, 15

(Logical Reasoning)

16. Some friends are sitting on a bench. Vijay is sitting next to Anita and Sanjay is next to Geeta. Geeta is not sitting with Ajay. Ajay is on the left end of the bench and Sanjay is in second position from right hand side. Vijay is on the right side of Anita and to the right side of Ajay, Vijay and Sanjay are sitting together. Who is sitting in the centre?

- (a) Ajay (b) Vijay (c) Geeta (d) Sanjay

17. If seventh day of a month is three days earlier than Friday, what day will it be on nineteenth day of the month?

- (a) Sunday (b) Monday (c) Wednesday (d) Friday

18. P, Q, R and S are playing carom game. P, R and S, Q are partners. S is to the right of R who is facing West. Then Q is facing what direction?

- (a) North (b) South (c) East (d) West

19. A is the father of C and D is the son of B. E is the brother of A. If C is the sister of D, how is B related to E?

- (a) Daughter (b) Brother-in-law (c) Husband (d) Sister-in-law

20. Ravi is not wearing white and Ajay is not wearing blue. Ravi and Sohan wear different color. Sachin alone wears red. What is Sohan colored, if all four of them are wearing different color.

(a) red

(b) blue

(c) white

(d) can't say