



RAMAGYA SCHOOL, NOIDA

X/MATHS/2018-19

OLYMPIAD PRACTICE WORKSHEET

(Concept based)

- The roots of $ax^2 + bx + c = 0$ are real and unequal, if $b^2 - 4ac$ is _____
(A) = 0 (B) > 0 (C) < 0 (D) ≥ 0
- The HCF of 95 and 152 is
(A) 57 (B) 1 (C) 19 (D) 38
- The value of k for which the system of equations $kx - y = 2$ and $6x - 2y = 3$ has a unique solution, is
(A) 3 (B) $\neq 3$ (C) $\neq 0$ (D) = 0
- If one root of the polynomial $f(x) = 5x^2 + 13x + k$ is the reciprocal of the other, then value of k is
(A) 0 (B) 5 (C) $1/6$ (D) 6
- If a pair of linear equation in two variables is consistent, then the lines represented by two equations are
(A) intersecting (B) parallel (C) always coincident (D) intersecting or coincident

(Application based)

- One of the students while solving a quadratic equation in x, copied the constant term incorrectly and got the roots 3 and 2. The other copied the constant term and coefficient of x^2 correctly as -6 and 1 respectively. The correct roots are _____
(A) 3, -2 (B) -3, 2 (C) -6, -1 (D) 6, -1
- If one the roots of $2x^2 + ax + 32 = 0$ is twice the other roots, then the value of a is _____
(A) $-3\sqrt{2}$ (B) $8\sqrt{2}$ (C) $12\sqrt{2}$ (D) $-2\sqrt{2}$
- The LCM of two numbers is 1200. Which of the following cannot be their HCF ?
(A) 600 (B) 500 (C) 400 (D) 200
- If $am \neq bl$, then the system of equations $ax + by = c$ and $lx + my = n$
(A) has a unique solution (B) has no solution
(C) has infinitely many solutions (D) may or may not have a solution
- If $\sqrt{5}$ and $-\sqrt{5}$ are two zeroes of the polynomial $x^3 + 3x^2 - 5x - 15$, then its third zero is
(A) 3 (B) -3 (C) 5 (D) -5

(Value based)

11. A man walks a distance of 48km in a given time. If he walks 2 km per hour faster, he will perform the journey 4 hours before. His normal rate of walking is
 (A) 3 km/hr (B) 4 km/hr (C) -6 km/hr or 4 km/hr (D) 5 km/hr
12. S6500 were divided equally among a certain number of people. If there had been 15 more persons, each would have got S30 less. Find the original number of persons
 (A) 50 (B) 60 (C) 45 (D) 55
13. Swati can row her boat at a speed of 5 km/hr in still water. If it takes her one hour more to row the boat 5.25 km upstream than to return downstream, find the speed of the stream
 (A) 5 km/hr (B) 2 km/hr (C) 3 km/hr (D) 4 km/hr
14. The income of x and y are in the ratio of 8 : 7 and their expenditure are in the ratio n 19 : 16. If each saves S1250, find their incomes.
 (A) 6000, 5250 (B) 5000, 4250 (C) 7000, 6250 (D) 9000, 8250
15. The larger of two supplementary angles exceeds the smaller by 18 degree. Find them.
 (A) 100, 80 (B) 99, 81 (C) 98, 82 (D) 98, 80

(Logical Reasoning)

16. If $x^4 + 1/x^4 = 47$, then find the value of $x^3 + 1/x^3$
 (A) 7 (B) 18 (C) 6 (D) 12
17. '+' stands for division, '÷' stands for multiplication, 'x' stands for subtraction and '-' stands for addition. Which one of the following equation is correct?
 (A) $18 \div 6 - 7 + 5 \times 2 = 20$ (B) $18 + 6 \div 7 \times 5 - 2 = 18$ (C) $18 \times 6 + 7 \div 5 - 2 = 16$ (D) $18 \div 6 \times 7 + 5 - 2 = 22$
18. In a row of 40 boys, Satish was shifted 10 places to the right of Rohan and Kartik was shifted 10 places to the left of Vikas. If Vikas was 26 from the left and there were 3 boys between Kartik and Satish after shifting, what was the position of Rohan in the row?
 (A) 10th from the right end (B) 10th from the left end (C) 39th from the right end (D) Data inadequate
- 19 Complete the given series 4, 9, 13, 22, 35.....
 (A) 57 (B) 70 (C) 63 (D) 75
20. If the alphabet series is written in the reverse order, which letter will be 5th to the left of the 14th letter from the left?
 (A) R (B) I (C) S (D) V