

OUR OWN HIGH SCHOOL, AL WARQA'A, DUBAI

GRADE: X – QUADRATIC EQUATIONS

ASSIGNMENT 1

- Solve the following quadratic equations by factorisation:
(a) $3x^2 - 11x + 6 = 0$ (b) $4\sqrt{3}x^2 + 5x - 2\sqrt{3} = 0$ (c) $9x^2 - 34x - 8 = 0$
- Solve the following quadratic equations by completing the squares:
(a) $4x^2 + 4\sqrt{3}x + 3 = 0$ (b) $3x^2 - 5x - 4 = 0$ (c) $x^2 - 4ax + 4a^2 - b^2 = 0$
- Solve the following quadratic equations by quadratic formula:
(a) $4x^2 - 2x - 3 = 0$ (b) $\sqrt{2}x^2 - 3x - 2\sqrt{2} = 0$ (c) $x^2 - 2ax + (a^2 - b^2) = 0$
- Solve: (a) $\frac{1}{a+b+x} = \frac{1}{a} + \frac{1}{b} + \frac{1}{x}$ (b) $\frac{x}{x+1} + \frac{x+1}{x} = \frac{34}{15}$
(c) $\frac{x-3}{x+3} - \frac{x+3}{x-3} = 6\frac{6}{7}$ (d) $\frac{2x-3}{x-1} - 4\left(\frac{x-1}{2x-3}\right) = 3$
- Find the set of values of k for which the equation $(k-12)x^2 + 2(k-12)x + 2 = 0$ has equal roots.

ASSIGNMENT 2

- If the roots of the equation $(a-b)x^2 + (b-c)x + (c-a) = 0$ are equal, prove that $2a = b + c$.
- The perimeter of a rectangular garden is 82 m and its area is 400 m². Find the breadth of the rectangle.
- Some students planned for a picnic. The budget for food was Rs. 500. But, 5 of them failed to go and thus the cost of food for each member increased by Rs. 5. How many students attended the picnic?
- The time taken by a man to cover 150 km on a motorbike was 2½ hours more than the time taken by him during the return journey. If the speed of the returning was 10 km/h more than the speed in going, what was the speed per hour in each direction?
- A takes 6 days less the time taken by B to finish a piece of work. If both A and B together can finish it in 4 days, find the time taken by B to finish the work.

ASSIGNMENT 3

1. If two pipes function simultaneously, a reservoir will be filled in 12 hours. One pipe fills the reservoir 10 hours faster than the other. How many hours will the second pipe take to fill the reservoir?
2. A plane left 20 minutes late due to bad weather and in order to reach its destination 1200 km away in time, it had to increase its speed by 120 km/h from its usual speed. Find the usual speed of the plane.
3. A two digit number is such that the product of its digit is 24. If 45 is subtracted from the number, the digits interchange places. Find the number.
4. One-fourth of a herd of camels was seen in the forest. Twice the square root of the herd had gone to mountains and the remaining 15 camels were seen on the bank of a river. Find the total number of camels.
5. The speed of a boat in still water is 15 km/h. It can go 60 km upstream and return downstream to the original point in 9 hours. Find the speed of the stream.

ANSWERS

ASSIGNMENT 1

1. (a) $8/3, 1$ (b) $\frac{-2\sqrt{3}}{3}, \frac{\sqrt{3}}{4}$ (c) $4, -2/9$ 2. (a) $\frac{-\sqrt{3}}{2}, \frac{-\sqrt{3}}{2}$
(b) $\frac{5+\sqrt{73}}{6}, \frac{5-\sqrt{73}}{6}$ (c) $2a+b, 2a-b$ 3. (a) $\frac{1+\sqrt{3}}{4}, \frac{1-\sqrt{3}}{4}$ (b) $2\sqrt{2}, \frac{-\sqrt{2}}{2}$
(c) $a+b, a-b$ 4. (a) $-a, -b$ (b) $-5/2, 3/2$ (c) $-4, 9/4$ (d) $1/2, 4/3$ 5. 14, 12

ASSIGNMENT 2

2. 16 m 3. 25 4. 20 km/h, 30 km/h 5. 12 days, 6 days.

ASSIGNMENT 3

1. 30 hours 2. 600 km/h 3. 83 4. 36 camels 5. 5 km/h
