

BCM SCHOOL, BASANT AVENUE, DUGRI ROAD, LUDHIANA
CLASS-X(MATHEMATICS)
ASSIGNMENT 2(QUADRATIC EQUATIONS)

ANSWER KEY

1.	B
2.	D
3.	C
4.	C
5.	$D = \{2(P - 12)\}^2 - 4 \cdot 2(P - 12) = 0$ $4\{ (P - 12)^2 - 2(P - 12) \} = 0$ $(P - 12)^2 - 2(P - 12) = 0$ $(P - 12)\{ P - 12 - 2 \} = 0$ $(P - 12)(P - 14) = 0$ $P = 12, 14$
6.	<p>Let x = Distance between the boundaries of the lawn and the pond. Length of pond = $(50 - 2x)$ m and breadth of pond = $(40 - 2x)$ m Area of pond = Area of lawn - Area of grass around pond. $\therefore (40 - 2x)(50 - 2x) = (50)(40) - 1184$</p> $2000 - 1184 = 2000 - 180x + 4x^2$ $\Rightarrow x^2 - 45x + 296 = 0$ $\Rightarrow x^2 - 8x - 37x + 296 = 0$ $\Rightarrow x(x - 8) - 37(x - 8) = 0$ $\Rightarrow (x - 8)(x - 37) = 0$ $x = 37, x = 8$

7.

Given, $(a - b)x^2 + (b - c)x + (c - a) = 0$ are equal.

Then the discriminant = 0.

Then

$$(b - c)^2 - 4(c - a)(a - b) = 0$$

$$\text{or, } (b^2 - 2bc + c^2) - 4(ac - bc - a^2 + ab) = 0$$

$$\text{or, } (b^2 + 2bc + c^2) - 2a(b + c) + 4a^2 = 0$$

$$\text{or, } (b + c)^2 - 2a(b + c) + 4a^2 = 0$$

$$\text{or, } (b + c - 2a)^2 = 0$$

$$\text{or, } 2a = b + c.$$

8.

According to the question,

$$\frac{1600}{x} - \frac{1600}{x + 400} = \frac{2}{3}$$

$$\Rightarrow 1600 \left[\frac{x + 400 - x}{x(x + 400)} \right] = \frac{2}{3}$$

$$\Rightarrow \frac{400}{x(x + 400)} = \frac{2}{3} \times \frac{1}{1600}$$

$$\Rightarrow x(x + 400) = \frac{400 \times 3 \times 1600}{2}$$

$$\Rightarrow x^2 + 400x = 960000$$

$$\Rightarrow x^2 + 400x - 960000 = 0$$

$$\Rightarrow x^2 + 1200x - 800x - 960000 = 0$$

$$\Rightarrow x(x + 1200) - 800(x + 1200) = 0$$

$$\Rightarrow (x + 1200)(x - 800) = 0$$

$$\therefore x = -1200 \text{ or } x = 800$$

Since speed ca not be negative.