



### Quadratic Equations Ex 8.9 Q1

**Answer :**

Given that Ashu's present age is  $= x$  years and his mother Mrs. Veena is  $= x^2$  years

Then according to question,

Five years later, Ashu's is  $= (x + 5)$  years

And his mother Mrs. Veena is  $= (x^2 + 5)$  years

Thus

$$x^2 + 5 = 3(x + 5)$$

$$x^2 + 5 = 3x + 15$$

$$x^2 + 5 - 3x - 15 = 0$$

$$x^2 - 3x + 10 = 0$$

$$x^2 - 5x + 2x + 10 = 0$$

$$x(x - 5) + 2(x - 5) = 0$$

$$(x - 5)(x + 2) = 0$$

So, either

$$(x - 5) = 0$$

$$x = 5$$

Or

$$(x + 2) = 0$$

$$x = -2$$

But, the age can never be negative.

Therefore, when  $x = 5$  then

$$x^2 = 5^2$$

$$= 25$$

Hence, Ashu's present age is  $= \boxed{5 \text{ years}}$  and his mother Mrs. Veena is  $= \boxed{25 \text{ years}}$

### Quadratic Equations Ex 8.9 Q2

**Answer :**

Let the present age of the man be  $x$  years

Then present age of his son is  $= (45 - x)$  years

Five years ago, man's age  $= (x - 5)$  years

And his son's age  $(45 - x - 5) = (40 - x)$  years

Then according to question,

$$(x - 5)(40 - x) = 4(x - 5)$$

$$40x - x^2 + 5x - 200 = 4x - 20$$

$$-x^2 + 45x - 200 = 4x - 20$$

$$-x^2 + 45x - 200 - 4x + 20 = 0$$

$$-x^2 + 41x - 180 = 0$$

$$x^2 - 41x + 180 = 0$$

$$x^2 - 36x - 5x + 180 = 0$$

$$x(x - 36) - 5(x - 36) = 0$$

$$(x - 36)(x - 5) = 0$$

So, either

$$(x - 36) = 0$$

$$x = 36$$

Or

$$(x - 5) = 0$$

$$x = 5$$

But, the father's age never be 5 years

Therefore, when  $x = 36$  then

$$45 - x = 45 - 36$$

$$= 9$$

Hence, man's present age is = 36 years and his son's age is = 9 years

**Answer :**

Let the present age of Shikha be  $x$  years

Then, 8 years later, age of her  $= (x + 8)$  years

Five years ago, her age  $= (x - 5)$  years

Then according to question,

$$(x - 5)(x + 8) = 30$$

$$x^2 + 8x - 5x - 40 = 30$$

$$x^2 + 3x - 40 - 30 = 0$$

$$x^2 + 3x - 70 = 0$$

$$x^2 + 3x - 70 = 0$$

$$x^2 - 7x + 10x - 70 = 0$$

$$x(x - 7) + 10(x - 7) = 0$$

$$(x - 7)(x + 10) = 0$$

So, either

$$(x - 7) = 0$$

$$x = 7$$

Or

$$(x + 10) = 0$$

$$x = -10$$

But the age never be negative

Hence, the present age of Shikha be = 7 years

**Answer :**

Let the present age of Ramu be  $x$  years

Then, 9 years later, age of her =  $(x + 9)$  years

Five years ago, her age =  $(x - 5)$  years

Then according to question,

$$(x - 5)(x + 9) = 15$$

$$x^2 + 9x - 5x - 45 = 15$$

$$x^2 + 4x - 45 - 15 = 0$$

$$x^2 + 4x - 60 = 0$$

$$x^2 + 4x - 60 = 0$$

$$x^2 - 6x + 10x - 60 = 0$$

$$x(x - 6) + 10(x - 6) = 0$$

$$(x - 6)(x + 10) = 0$$

So, either

$$(x - 6) = 0$$

$$x = 6$$

Or

$$(x + 10) = 0$$

$$x = -10$$

But the age never be negative

Hence, the present age of Ramu be = 6 years

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