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 $=\boxed{36 \text{ years}}$ and his son's age is $=\boxed{9 \text{ years}}$

Quadratic Equations Ex 8.9 Q3

**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 $=\boxed{7 \text{ years}}$

Quadratic Equations Ex 8.9 Q4

**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 $=\boxed{6 \text{ years}}$

********** END **********