



Quadratic Equations Ex 8.3 Q16

Answer :

We have been given

$$x^2 - (\sqrt{2} + 1)x + \sqrt{2} = 0$$

Now we solve the above quadratic equation using factorization method.

Therefore,

$$x^2 - \sqrt{2}x - x + \sqrt{2} = 0$$

$$x(x - \sqrt{2}) - 1(x - \sqrt{2}) = 0$$

$$(x - 1)(x - \sqrt{2}) = 0$$

Now, one of the products must be equal to zero for the whole product to be zero. Hence we equate both the products to zero in order to find the value of x .

Therefore,

$$x - 1 = 0$$

$$x = 1$$

Or

$$x - \sqrt{2} = 0$$

$$x = \sqrt{2}$$

Hence, $\boxed{x = 1}$ or $\boxed{x = \sqrt{2}}$.

Quadratic Equations Ex 8.3 Q17

Answer :

We have been given

$$x^2 - (\sqrt{3} + 1)x + \sqrt{3} = 0$$

Now we solve the above quadratic equation using factorization method.

Therefore,

$$x^2 - \sqrt{3}x - x + \sqrt{3} = 0$$

$$x(x - \sqrt{3}) - 1(x - \sqrt{3}) = 0$$

$$(x - 1)(x - \sqrt{3}) = 0$$

Now, one of the products must be equal to zero for the whole product to be zero. Hence we equate both the products to zero in order to find the value of x .

Therefore,

$$x - 1 = 0$$

$$x = 1$$

Or

$$x - \sqrt{3} = 0$$

$$x = \sqrt{3}$$

Hence, $\boxed{x = 1}$ or $\boxed{x = \sqrt{3}}$.

Quadratic Equations Ex 8.3 Q18

Answer :

We have been given

$$4x^2 + 4bx - (a^2 - b^2) = 0$$

Now we solve the above quadratic equation using factorization method.

Therefore,

$$4x^2 + 2(a+b)x - 2(a-b)x - (a^2 - b^2) = 0$$

$$2x(2x + a + b) - (a - b)(2x + a + b) = 0$$

$$(2x - (a - b))(2x + a + b) = 0$$

Now, one of the products must be equal to zero for the whole product to be zero. Hence we equate both the products to zero in order to find the value of x.

Therefore,

$$2x - (a - b) = 0$$

$$2x = a - b$$

$$x = \frac{a - b}{2}$$

Or

$$2x + a + b = 0$$

$$2x = -(a + b)$$

$$x = \frac{-(a + b)}{2}$$

Hence, $\boxed{x = \frac{a - b}{2}}$ or $\boxed{x = \frac{-(a + b)}{2}}$.

Quadratic Equations Ex 8.3 Q19

Answer :

We have been given

$$ax^2 + (4a^2 - 3b)x - 12ab = 0$$

Now we solve the above quadratic equation using factorization method.

Therefore,

$$ax^2 + 4a^2x - 3bx - 12ab = 0$$

$$ax(x + 4a) - 3b(x + 4a) = 0$$

$$(ax - 3b)(x + 4a) = 0$$

Now, one of the products must be equal to zero for the whole product to be zero. Hence we equate both the products to zero in order to find the value of x.

Therefore,

$$ax - 3b = 0$$

$$ax = 3b$$

$$x = \frac{3b}{a}$$

Or

$$x + 4a = 0$$

$$x = -4a$$

Hence, $\boxed{x = \frac{3b}{a}}$ or $\boxed{x = -4a}$.

***** END *****