



Quadratic Equations Ex 8.3 Q36

Answer :

We have been given

$$x^2 + 2ab = (2a + b)x$$

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

Now we solve the above quadratic equation using factorization method.

Therefore,

$$x^2 - 2ax - bx + 2ab = 0$$

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

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

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,

$$x - 2a = 0$$

$$x = 2a$$

Or

$$x - b = 0$$

$$x = b$$

Hence, $\boxed{x = 2a}$ or $\boxed{x = b}$.

Quadratic Equations Ex 8.3 Q37

Answer :

We have been given

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

Now we solve the above quadratic equation using factorization method.

Therefore,

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

$$(a + b)^2 x(x - 1) + (a - b)^2 (x - 1) = 0$$

$$((a + b)^2 x + (a - b)^2)(x - 1) = 0$$

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,

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

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

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

Or

$$x - 1 = 0$$

$$x = 1$$

Hence, $\boxed{x = -\left(\frac{a - b}{a + b}\right)^2}$ or $\boxed{x = 1}$.

Quadratic Equations Ex 8.3 Q38

Answer :

We have been given

$$a(x^2 + 1) - x(a^2 + 1) = 0$$

$$ax^2 - (a^2 + 1)x + a = 0$$

Now we solve the above quadratic equation using factorization method.

Therefore,

$$ax^2 - a^2x - x + a = 0$$

$$ax(x - a) - 1(x - a) = 0$$

$$(ax - 1)(x - a) = 0$$

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,

$$ax - 1 = 0$$

$$ax = 1$$

$$x = \frac{1}{a}$$

Or

$$x - a = 0$$

$$x = a$$

Hence, $\boxed{x = \frac{1}{a}}$ or $\boxed{x = a}$.

Quadratic Equations Ex 8.3 Q39

Answer :

We have been given

$$x^2 - x - a(a + 1) = 0$$

Now we solve the above quadratic equation using factorization method.

Therefore,

$$x^2 + ax - (a + 1)x - a(a + 1) = 0$$

$$x(x + a) - (a + 1)(x + a) = 0$$

$$(x - (a + 1))(x + a) = 0$$

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,

$$x - (a + 1) = 0$$

$$x = (a + 1)$$

Or

$$x + a = 0$$

$$x = -a$$

Hence, $\boxed{x = a + 1}$ or $\boxed{x = -a}$.

Quadratic Equations Ex 8.3 Q40

Answer :

We have been given

$$x^2 + \left(a + \frac{1}{a}\right)x + 1 = 0$$

Now we solve the above quadratic equation using factorization method.

Therefore,

$$x^2 + ax + \frac{1}{a}x + 1 = 0$$

$$x\left(x + a\right) + \frac{1}{a}(x + a) = 0$$

$$\left(x + \frac{1}{a}\right)(x + a) = 0$$

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,

$$x + \frac{1}{a} = 0$$

$$x = -\frac{1}{a}$$

Or

$$x + a = 0$$

$$x = -a$$

Hence, $\boxed{x = -\frac{1}{a}}$ or $\boxed{x = -a}$.

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