

Linear Equations in One Variable Ex 9.4 Q24

At the rate of 10%, let the investment by Bhagwanti be Rs. x.

Therefore, at the rate of 12%, the investment will be Rs. (12000 - x).

At the rate of 10%, her annual income = $x \times 10\%$

At the rate of 12%, her annual income = (12000 - x) \times 12%

So.

 $\mathbf{x} \times 0.1 + 0.12(12000 - \mathbf{x}) = 1280$

or 0.1x - 0.12x = 1280 - 1440

or 0.02x = 160

or x = 8000

Thus, at the rate of 10%, she invested Rs. 8000 and at the rate of 12%, she invested Rs. 4000 (12000 - 8000).

Linear Equations in One Variable Ex 9.4 Q25

Answer:

Let the breadth of the rectangle be x cm.

Therefore, the length of the rectangle will be (x + 9) cm.

 \therefore Area of the rectangle = x(x + 9) cm².

If the length and breadth are increased by 3 cm each,

area =
$$(x + 3)(x + 9 + 3)$$
 cm².

Now,

$$(x + 3)(x + 12) - x(x + 9) = 84$$

or
$$x^2 + 15x + 36 - x^2 - 9x = 84$$

or
$$6x = 84 - 36$$

or
$$x = \frac{48}{6} = 8$$
.

Thus, breadth of the rectangle = 8 cm.

Length of the rectangle = (8+9) = 17 cm.

Linear Equations in One Variable Ex 9.4 Q26

Answer:

Let Anup's age be x years.

Therefore, his father's age will be (100 - x) years.

When Anup is as old as his father after (100 - 2x) years,

Anuj's age =
$$\left(\frac{100 - x}{5} + 100 - 2x\right)$$
 years = $\frac{600 - 11x}{5}$ years.

Again, when Anup is as old as his father,

Anuj's age = x + 8.

Now,

$$\frac{600-11x}{5} = x + 8$$

or
$$600 - 11x = 5x + 40$$

or
$$16x = 560$$

or
$$x = 35$$
.

Thus, Anup's age = 35 years

Anup's father's age =
$$100 - x = 100 - 35 = 65$$
 years

Anuj's age =
$$x + 8 = 35 + 8 = 43$$
 years

Linear Equations in One Variable Ex 9.4 Q27

Answer:

Suppose, the lady started with x rupees.

Money spent on shopping = $\frac{x}{2}$ rupees

Remaining amount = $x - \frac{x}{2} = \frac{x}{2}$ rupees

After giving a rupee she had $= \left(\frac{\mathbf{x}}{2} - 1\right)$ rupees

Money spent on lunch = $\frac{1}{2} \left(\frac{\mathbf{x}}{2} - 1 \right)$ rupees

After giving $a \text{ two-rup} ee \text{ tip she had} = \frac{1}{2} \left(\frac{\mathbf{x}}{2} - 1 \right) - 2 = \frac{\mathbf{x} - 2 - 8}{4} = \frac{\mathbf{x} - 10}{4} \text{ rupees}$

Money spent on a book = $\frac{1}{2} \left(\frac{x-10}{4} \right)$ rupees

After spending three rupees on bus fare she had = $\frac{1}{2} \left(\frac{x-10}{4} \right) - 3 = \frac{x-10-24}{8} = \frac{x-34}{8}$ rupees

Now,

$$\frac{x-34}{8} = 1$$

or
$$x - 34 = 8$$

or
$$x = 42$$

Therefore, she started with 42 rupees.

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