Linear Equations in One Variable Ex 9.4 Q24

Answer :

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,
$x \times 0.1 + 0.12(12000 - x) = 1280$
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 $= x(x + 9)$ cm^2.

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

area $= (x + 3)(x + 9 + 3)$ cm^2.

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 $\left(100 - x\right)$ years.

When Anup is as old as his father after $\left(100 - 2x\right)$ 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 $= \left(\frac{x}{2} - 1\right)$ rupees

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

After giving a two-rupee tip she had $= \frac{1}{2}\left(\frac{x}{2} - 1\right) - 2 = \frac{x-2-8}{4} = \frac{x-10}{4}$ 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 **********