

Pair of Linear Equations in Two varibles Ex 3.11 Q11

Answer:

We have to prove that the triangle is right

Given
$$\angle A = x^{\circ}$$
, $\angle B = 3x^{\circ}$ and $\angle C = y^{\circ}$

Sum of three angles in triangle are $\angle A + \angle B + \angle c = 180^{\circ}$

$$\angle A + \angle B + \angle c = 180^{\circ}$$

$$x + 3x + y = 180$$

$$4x + y = 180 \cdot \cdot \cdot (i)$$

By solving 4x + y = 180 with 3y - 5x = 30 we get,

$$4x + y = 180$$

$$-5x + 3y = 30 \cdot \cdot \cdot (ii)$$

Multiplying equation (i) by 3 we get

$$12x + 3y = 540 \cdots (iii)$$

Subtracting equation (ii) from (iii)

$$12x + 3y = 540$$

$$+5x - 3y = -30$$

$$17x = 510$$

$$x = \frac{510}{17}$$

$$x = 30^{\circ}$$

Substituting $x = 30^{\circ}$ in equation (i) we get

$$4x + y = 180$$

$$4 \times 30 + y = 180$$

$$120 + y = 180$$

$$v = 180 - 120$$

$$y = 60^{\circ}$$

Angles $\angle A, \angle B$ and $\angle C$ are

$$\angle A = x^{\circ}$$

$$\angle B = 3x^{\circ}$$

$$=3\times30^{\circ}$$

$$=90^{\circ}$$

$$\angle C = y^{\circ}$$

A right angled triangle is a triangle in which one side should has a right angle that is 90° in it. Hence, $\angle B = 90^{\circ}$ The triangle ABC is right angled

Pair of Linear Equations in Two varibles Ex 3.11 Q12

Answer:

Let the fixed charges of car be $\mathit{Rs.x}$ per km and the running charges be $\mathit{Rs.y}$ km/hr According to the given condition we have

$$x+12y=89\cdots(i)$$

$$x + 20y = 145 \cdots (ii)$$

$$x + 12y = 89$$

$$x + 20y = 145$$

$$-8y = -56$$

$$y = \frac{\cancel{56}}{\cancel{8}}$$

$$y = 7$$

Putting $y = 7$ in equation (i) we get

$$x+12y = 89$$

$$x+12\times7=89$$

$$x + 84 = 89$$

$$x = 89 - 84$$

$$x = 5$$

Therefore, Total charges for travelling distance of 30 km

$$= x + 30y$$

$$=5+30\times7$$

$$=5+210$$

Hence, A person have to pay Rs. 215 for travelling a distance of 30 km.

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