

## Quadratic Equations Ex 8.13 Q10

## Answer:

Let marks obtained by Shefali in mathematics be x, then in english = (30-x)It is given that,

$$(x+2) \times (30-x-3) = 210$$

$$(x+2) \times (27-x) = 210$$

$$27x-x^2+54-2x = 210$$

$$-x^2+25x+54-210 = 0$$

$$-(x^2-25x+156) = 0$$

$$x^2-25x+156 = 0$$

$$x^2-12x-13x+156 = 0$$

$$x(x-12)-13(x-12) = 0$$

$$(x-12)(x-13) = 0$$

$$(x-12) = 0 \quad \text{or} \quad (x-13) = 0$$

$$x = 12 \quad x = 13$$
Therefore, when  $x = 12$  then

$$(30-x)=(30-12)$$
  
=18

Hence, marks in mathematics x = 12 and marks in science = 18. Or,

when x = 13 then

$$(30-x)=(28-13)$$
  
= 17

Hence, marks in mathematics x = 13 and marks in science x = 17.

Quadratic Equations Ex 8.13 Q11

## Answer:

Let the number of article produced by the cottage industry be x.

Then the cost of production of each article = Rs.(2x+3)

It is given that total cost of production = Rs. 90

Therefore.

$$x(2x+3) = 90$$
$$2x^{2} + 3x = 90$$
$$2x^{2} + 3x - 90 = 0$$

$$2x^{2}-12x+15x-90=0$$

$$2x(x-6)+15(x-6)=0$$

$$(x-6)(2x+15)=0$$

$$(x-6)=0 \text{ or } (2x+15)=0$$

$$x=6 \qquad x=\frac{-15}{2}$$

Therefore, x cannot be negative.

So, when x = 6 then  $(2x+3)=(2\times 6+3)$ 

=12+3=15

Hence, the number of article produced by the cottage industry be  $\boxed{x=6}$  and the cost of production of each article = 15

\*\*\*\*\*\*\*\*\* END \*\*\*\*\*\*\*\*