$10x - 1 = 0$ | $10x - 1 = 0$

$\Rightarrow x = \frac{1}{10}$ | $\Rightarrow x = \frac{1}{10}$

2 $x^2 - 45x + 324 = 0$

$= x^2 - 9x - 36x + 324 = 0$

$= x(x - 9) - 36(x - 9) = 0$

$= (x - 36)(x - 9) = 0$

$x - 36$ | $x - 9 = 0$

$\Rightarrow x = 36$ | $\Rightarrow x = 9$

(a) $x^2 - 55x + 750 = 0$

$\Rightarrow x^2 - 30x - 25x + 750 = 0$

$\Rightarrow x(x - 30) - 25(x - 30) = 0$

$\Rightarrow (x - 25)(x - 30) = 0$

$x - 25 = 0$ | $x - 30 = 0$

$\Rightarrow x = 25$ | $\Rightarrow x = 30$

3. Let the first no be x

Given,

Sum of both no. is 27

x + second no $= 27$

$\Rightarrow$ second no $= 27 - x$

Also

$x(27 - x) = 182$

$\Rightarrow 27x - x^2 = 182$

$\Rightarrow 0 = x^2 - 27x + 182$

$\Rightarrow x^2 - 27x + 182 = 0$

$\Rightarrow x(x - 13) - 14(x - 13) = 0$

$\Rightarrow (x - 14)(x - 13) = 0$

$x - 14 = 0$ | $x - 13 = 0$

$\Rightarrow x = 14$ | $\Rightarrow x = 13$

So two no are 14, 13

Q2. 1)

Let first integer be x

So and integer x + 1

Also,

Sum of squares = 365

$x^2 + (x+1)^2 = 365$

$x^2 + x^2 + 1^2 + 2 \times x \times 1 = 365$

$2x^2 + 1 + 2x = 365$

$2x^2 + 2x = 364$

$2(x^2 + x = 182)$

$x^2 + x = 182 = \frac{0}{2}$

$x^2 + x - 182 = 0$

$x^2 + 14x - 13x - 182 = 0$

$x(x + 14) - 13(x + 14)$

$(x - 13)(x + 14) = 0$

$x - 13 = 0$ | $x + 14 = 0$

$x = 13$ | $x = -14$

We take $x = 13$

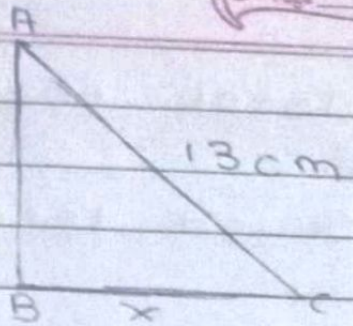
First no $= x = 13$

and no $= x + 1 = 13 + 1 = 14$

3 Altitude = AB

Hypotenuse = AC

Given,



Hypotenuse = AC = 13cm

and

Altitude = 7 less than base

Since ABC is right angled Δ

$(AC)^2 = (AB)^2 + (BC)^2$

$\Rightarrow (13)^2 = (x-7)^2 + x^2$

$\Rightarrow 169 = 2x^2 - 14x + 49$

$\Rightarrow 0 = 2x^2 - 14x + 49$

$\Rightarrow 2x^2 - 14x - 120 = 0$

$\Rightarrow 2(x^2 - 7x - 60) = 0$

$\Rightarrow x^2 - 7x - 60 = 0$

$\Rightarrow x^2 + 5x - 12x - 60 = 0$

$\Rightarrow (x-12)(x+5) = 0$

$\Rightarrow x = 12 \mid x = -5$

So Base = $x = 12$cm

Altitude = $x - 7 = 12 - 7 = 5$cm

Q) Total cost = no. of articles

Given total cost = ₹90

Let no. of articles = x

Hence cost of article = $2x + 3$

Now,

a) $90 = x(2x + 3)$

b) $x(2x + 3) = 90$

c) $x(2x) + 3x = 90$

d) $2x^2 + 3x = 90$

e) $2x^2 + 3x - 90 = 0$

So, $2x^2 + 15x - 12x - 90 = 0$

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

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

$x - 6 = 0$ | $2x + 15 = 0$

a) $x = 6$ | a) $x = -\frac{15}{2}$

Hence $x = 6$

So no. of articles = $x = 6$

Cost of articles = $2x + 3$

$= 2(6) + 3$

$= 12 + 3$

$= 15$