



STEPPING STONE
SCHOOL (HIGH)

CLASS : X

Subject: Mathematics

Date: 8/5/2020

Topic: Quadratic Equation

Time Limit:1 hour

Worksheet No. :11

[Copy the questions and solve them on a sheet of paper date wise. Keep the worksheets ready in a file to be submitted on the opening day.]

Examples :

The hypotenuse of a right angled triangle exceeds one side by 1 cm and other side by 18 cm . Find the length of the sides of the triangle.

Ans : let us assume perpendicular of a right angled triangle be 'x' and hence hypotenuse is (x+1) and according to condition other side will be (x-17).

Hence by pythagorrou s the theorem : $x^2 + (x-17)^2 = (x+1)^2$

$$\Leftrightarrow X^2 - 36x + 288 = 0 \Rightarrow (x-24)(x-12) = 0$$

$\Rightarrow X=24$ or $x=12$.But $x=12$ is not possible , hence sides are 24,7 and 25 as $24^2 + 7^2 = 25^2$

2) A square lawn is bounded on three sides by a 4 m wide .
the area of path is $\frac{7}{8}$ times that of the lawn , find the dimension of the lawn

Ans : let us assume that the side of the square is x m

Its three side is surrounded by '4 m' wide road ; Hence road area will be $4x + 4x + 4(x+8) = 12x + 32 = \frac{7}{8}x^2$

By condition $12x + 32 = \frac{7}{8}x^2$

$$\Leftrightarrow 7x^2 - 96x + 256 = 0$$

$$\Leftrightarrow 7x^2 - 112x + 16x - 16 \times 16 = 0$$

$$\Leftrightarrow 7x(x-16) + 16(x-16) = 0$$

$$\Leftrightarrow 16(x-16)(7x+16) = 0$$

\Rightarrow So $x=16$ or $x=-\frac{16}{7}$: As x is length hence can not be negative so the square lawn has equal side = 16 m

Exercise :

i) The area of a rectangular room is 300 m^2 If the length were decreased 5m and the breadth increased by 5 m area would be unaltered .

Find the dimension of the room

2) The speed of an aeroplane is reduced by 40kmph it takes 20 minutes more to cover 1200 k.m.

Find the speed of the aeroplane

3) A man bought an article for Rs x and sold it Rs 16 . If his loss was x percent find the cp = x .

4) The sum of the first n natural number is 276 find n .

5) A motorboat whose speed is 9 km/h in still water goes 12 k.m down stream and comes back in a total time of 3 hours .

Find the speed of the stream

6) The ages of the two sister are 11 years and 14 years in how many years time will product of their ages be 304.