18) If the perimeter of a rectangular plot is 68 m and length of its diagonal is 26 m, find its area.

Sol->

Perimeter of Rectangle $= 2(l+b)$

$\Rightarrow 2(l+b) = 68\ m$

$l+b = 34\ m \rightarrow (i)$

Diagonal $(D) = \sqrt{l^2+b^2}$

$\Rightarrow \sqrt{l^2+b^2} = 26\ m$

$l^2+b^2 = 676\ m \rightarrow (ii)$

Eq$^n$ (i) $l+b = 34$

$l = 34-b$

Put $l$ in (ii)

$(34-b)^2+b^2 = 676$

$(34)^2+b^2-2\times34\times b+b^2 = 676$

$1156+b^2-68b+b^2 = 676$

$2b^2-68b+1156-676 = 0$

$2b^2-68b+480 = 0$

$2[b^2-34b+240] = 0$

$b^2-34b+240 = 0$

$b^2 - 34b + 240 = 0$

$b^2 - (24+10)b + 240 = 0$

$b^2 - 24b - 10b + 240 = 0$

$b(b-24) - 10(b-24) = 0$

$(b-24)(b-10) = 0$

$b = 24, \; b = 10$

If $b = 24$

$l + 24 = 34$

$l = 10$ ✗

If $b = 10$

$l + 10 = 34$

$l = 24$ ✓

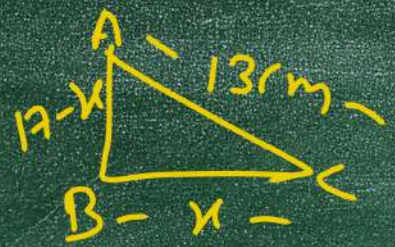
Area $= l \times b$

$= 24 \times 10$

$= 240 \; m^2$

Ans

Sum




Given

AB+BC = 17cm

Perimeter 30cm

AB+BC+CA = 30cm

17+CA = 30

CA = 13cm

let BC = x

AB+x = 17

AB = 17-x

In $\Delta ABC$

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

$(13)^2 = (17-x)^2 + (x)^2$

**Question 19**

**If the sum of two smaller sides of a right-angled triangle is 17 cm and the perimeter is 30 cm, then find the area of the triangle.**

$169 = 289 + x^2 - 34x + x^2$

$169 = 289 + 2x^2 - 34x$

$2x^2 - 34x + 289 - 169 = 0$

$2x^2 - 34x + 120 = 0$

$2[x^2 - 17x + 60] = 0$

$x^2 - 17x + 60 = 0$

$x^2 - 17x + 60 = 0$

$x^2 - (12+5)x + 60 = 0$

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

$x(x-12) - 5(x-12) = 0$

$(x-12)(x-5) = 0$

$x = 12, x = 5$

$BC = 12, 5$

If $BC = 12$

$AB + BC = 17$

$AB + 12 = 12$

$AB = 5$

If $BC = 5$

$AB + 5 = 17$

$AB = 12$

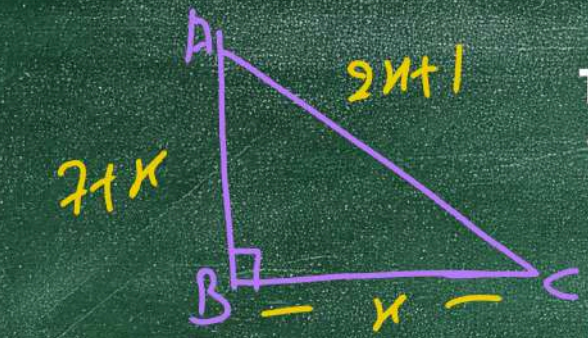
Area of triangle $= \frac{1}{2} \times b \times h$

$= \frac{1}{2} \times 12 \times 5$

$= 30 cm^2$

Ans

Sol->




**Question 20**

**The hypotenuse of a grassy land in the shape of a right triangle is 1 metre more than twice the shortest side. If the third side is 7 metres more than the shortest side, find the sides of the grassy land.**

let Shortest side (BC) = x

In $\triangle ABC$

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

$(2x+1)^2 = (7+x)^2 + (x)^2$

$4x^2 + 1 + 4x = 49 + x^2 + 14x + x^2$

$4x^2 + 4x + 1 = 2x^2 + 14x + 49$

$4x^2 + 4x + 1 - 2x^2 - 14x - 49 = 0$

$2x^2 - 10x - 48 = 0$

$2[x^2 - 5x - 24] = 0$

$x^2 - 5x - 24 = 0$

$x^2 - (8-3)x - 24 = 0$

$x^2 - 8x + 3x - 24 = 0$

$x(x-8) + 3(x-8) = 0$

$(x-8)(x+3) = 0$

$x = 8, x = -3$ X

BC = 8m

AB = 15m

AC = 17m

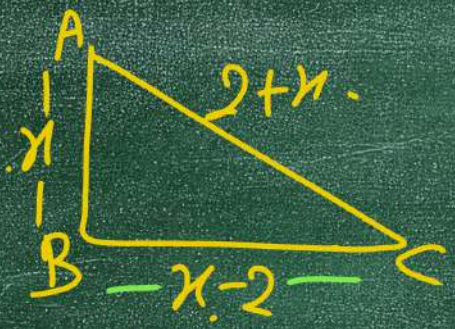
Ans

Sol-

$BC+4 = 2+x$

$BC = 2+x-4$

$BC = x-2$




**Question 21**

**Mohini wishes to fit three rods together in the shape of a right triangle. If the hypotenuse is 2 cm longer than the base and 4 cm longer than the shortest side, find the lengths of the rods.**

Let Bone $AB = x$ cm

$AC = 2+x$

$BC =$

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

$x^2 + x^2 + x - 4x = x + x^2 + 4x$

$x^2 - 4x - 4x = 0$

$x^2 - 8x = 0$

$x(x-8) = 0$

$x = 0, x = 8$

$AB = 8$ cm

$AC = 2+8 = 10$ cm

$AC = 10$ cm

$BC = 8-2$

$BC = 6$ cm

## Question 22

In a P.T. display, 480 students are arranged in rows and columns. If there are 4 more students in each row than the number of rows, find the number of students in each row.

**Question 24**

At an annual function of a school, each student gives gift to every other student. If the number of gifts is 1980, find the number of students.


PLEASE
DOWNLOAD
OUR ANDROID APP
OR JOIN
JOIN & SUBSCRIBE OUR
YOUTUBE CHANNELS
THANK YOU!
FOR YOUR LOVE & SUPPORT
We are Grateful!
SkyPedia
SkyPedia Academy
By:- Sunil Sir
Skynomics Academy
Skynomics Academy
(Commerce & Humanities)
Skynomics Academy
Skynomics Academy
- Science (10th, 11th & 12th)
SAINIK RIMC RMS
Skynomics Academy
- SAINIK,RIMC,RMS & Others
NDA CDS
Skynomics Academy
- NDA | CDS & OTHERS
9528538640
8923261528
JOIN OUR TELEGRAM GROUP
SKYNOMICS ACADEMY
QUALITY EDUCATION
EXPERT FACULTIES
BETTER RESULTS