

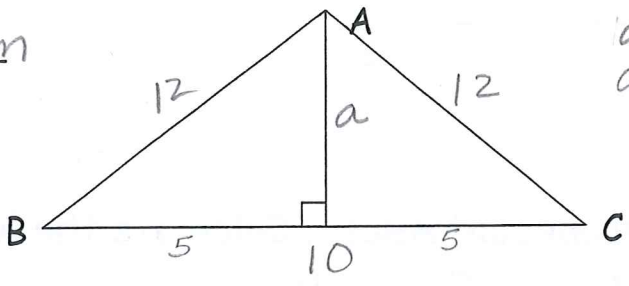
Name : Key

Period : \_\_\_\_\_

**Worksheet - Pythagorean Theorem**

Q1) ABC is an isosceles triangle,  $\overline{AB} = \overline{AC} = 12$  cm.  $\overline{BC} = 10$  cm. Calculate the perpendicular distance from A to BC.

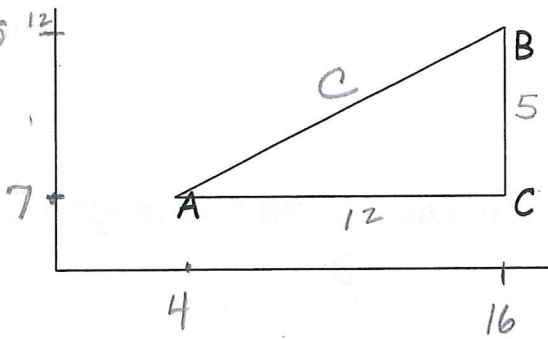
Answer = 10.9 cm



$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 a^2 + 5^2 &= 12^2 \\
 a^2 + 25 &= 144 \\
 -25 \quad -25 & \\
 \hline
 \sqrt{a^2} &= \sqrt{119} \\
 a &= 10.9
 \end{aligned}$$

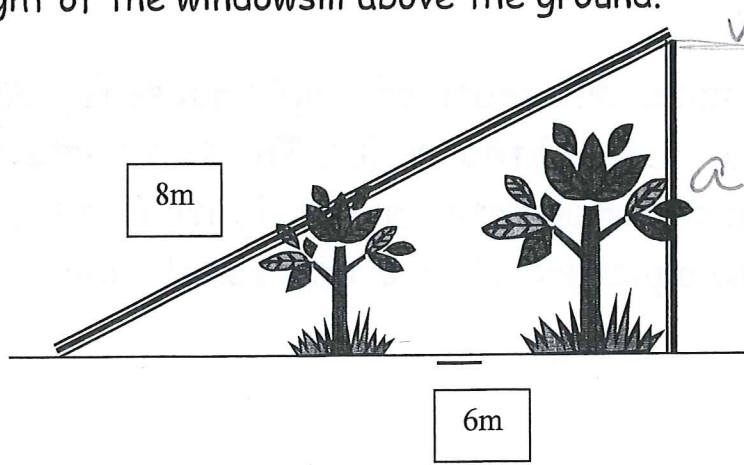
Q2) Find the length of  $\overline{AB}$  when coordinates of A are (4,7) and the coordinates of B are (16,12).

$\overline{AB} =$  13 units



$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 5^2 + 12^2 &= c^2 \\
 25 + 144 &= c^2 \\
 \sqrt{169} &= \sqrt{c^2} \\
 13 &= c
 \end{aligned}$$

Q3) A ladder is 8 meters long. It leans against a wall with one end on the ground 6 meter from the wall. The other end just reaches a windowsill. Calculate the height of the windowsill above the ground.

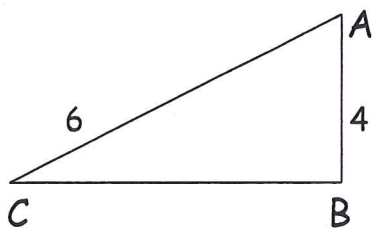


Window sill

$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 a^2 + 6^2 &= 8^2 \\
 a^2 + 36 &= 64 \\
 -36 \quad -36 & \\
 \hline
 \sqrt{a^2} &= \sqrt{28} \\
 a &= 5.29\text{m}
 \end{aligned}$$

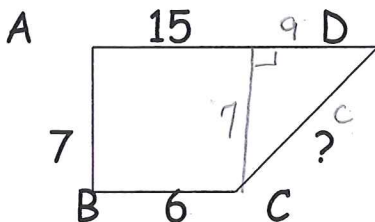
## Homework - Pythagoras theorem

Q1) Find the length of  $\overline{BC}$ .  $\overline{BC} = \underline{4.47 \text{ units}}$



$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 4^2 + b^2 &= 6^2 \\
 16 + b^2 &= 36 \\
 -16 & \quad -16 \\
 \hline
 b^2 &= 20 \\
 b &= \sqrt{20} \\
 b &= 4.47 \text{ units}
 \end{aligned}$$

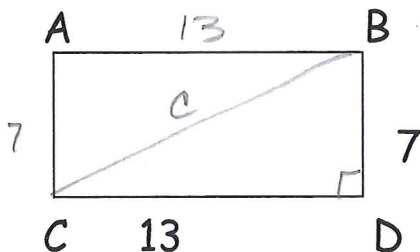
Q2) The diagram shows trapezoid ABCD. Calculate the length of  $\overline{CD}$ .  $\overline{CD} = \underline{11.4 \text{ units}}$



$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 7^2 + 9^2 &= c^2 \\
 49 + 81 &= c^2 \\
 \sqrt{130} &= \sqrt{c^2} \\
 11.4 &= c
 \end{aligned}$$

Q3) A rectangle is 13 cm long and 7 cm wide. Find the length of its diagonal  $\overline{BC}$ ?

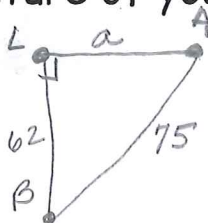
$\overline{BC} = \underline{14.76 \text{ cm}}$



$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 7^2 + 13^2 &= c^2 \\
 49 + 169 &= c^2 \\
 \sqrt{218} &= \sqrt{c^2} \\
 \underline{14.76} &= c
 \end{aligned}$$

Q4) A boat (B) is 62 miles due south of a lighthouse (L). Another boat (A) is due east of the lighthouse (L). The two boats are 75 miles apart. Calculate distance between the lighthouse (L) and the second boat (A). Draw a picture of your representation.

$\overline{LA} = \underline{42.2 \text{ miles}}$



$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 a^2 + 62^2 &= 75^2 \\
 a^2 + 3844 &= 5625 \\
 -3844 & \quad -3844 \\
 \hline
 a^2 &= 1781 \\
 a &= \sqrt{1781} \\
 a &= 42.2
 \end{aligned}$$