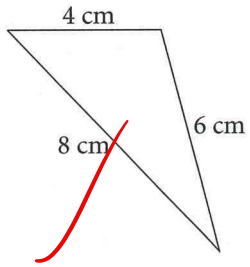
Practice

1. Use the Pythagorean Theorem to check if this is a right triangle.

Substitute $a =$ 6, $b =$ 4, and $h =$ 8
into the formula $h^2 = a^2 + b^2$

$h^2 =$ 64 $\quad a^2 + b^2 =$ 48



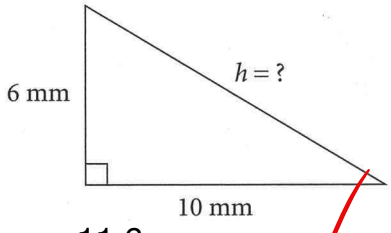
Circle the choices that make the sentence true.

Since h^2 *equals / does not equal* $a^2 + b^2$, the triangle *is / is not* a right triangle.

For questions 2 to 5, give each length to 1 decimal place.

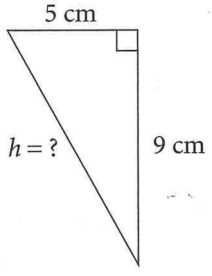
2. Use the equation $h^2 = a^2 + b^2$ to find the length of the unknown side.

a)



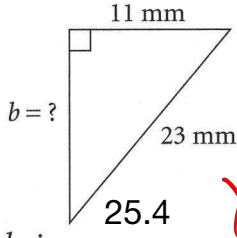
$h \doteq$ 11.6

b)



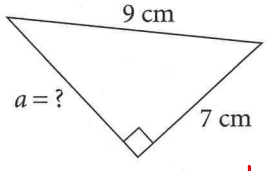
$h \doteq$ 10.3

c)



$b \doteq$ 25.4

d)



$a \doteq$ 11.1

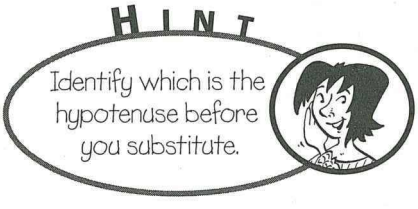
3. An 8-m ladder leans against a wall. How far up the wall does the ladder reach if the foot of the ladder is 3 m from the base of the wall? Show your work.

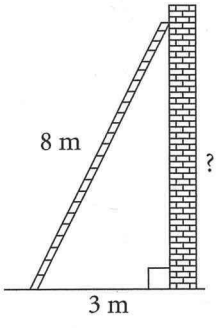
$a^2 + b^2 = c$

$3^2 + b^2 = 8$

$a^2 + b^2 = 64 - 9$

$\sqrt{b} = \sqrt{55}$





$b \doteq$ 7.4

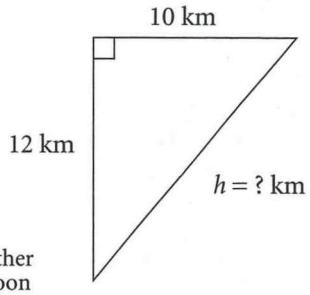
The ladder can reach a height of 7.4, to 1 decimal place.

4. A ship leaves port and travels 12 km due north. It then changes direction and travels due east for 10 km. How far must it travel to go directly back to port? Sketch a diagram to explain. $a^2 + b^2 = c^2$

$10^2 + 12^2 = c^2$

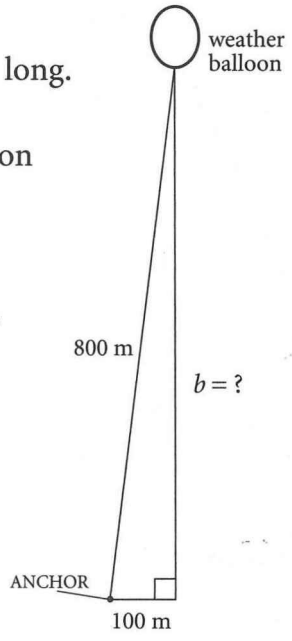
$100 + 144 = c^2$ $\sqrt{244} = \sqrt{c^2}$

The ship must travel 15.6, to 1 decimal place, to go directly back to port.



5. A weather balloon is anchored by a cable 800 m long. The balloon is flying directly above a point that is 100 m from the anchor. How high is the balloon flying? Give your answer to the nearest metre.

The balloon is flying at a height of 793.7, to the nearest metre.

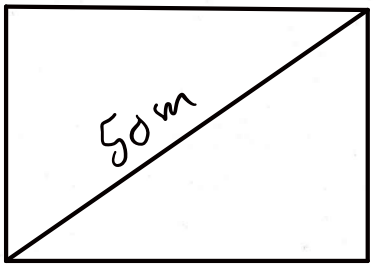


C square- A square= B square
800 - 100 = B square
640000- 10000= b square
Sqaure root 630000= square root b sqaure
793.7

6. A rectangular field is 40 m long and 30 m wide. Carl walks from one corner of the field to the opposite corner, along the edge of the field. Jade walks across the field diagonally to arrive at the same corner. How much shorter is Jade's shortcut?

Tip
Sketch a diagram first.

40 m



30m

The diagonal of the field measures 50m.
Jade walks 50m.
Carl walks 30m + 40m = 70m
Jade's shortcut is 70m − 50m = 20m shorter.

7. What is the length of a diagonal of a square with area 100 cm²? Give your answer to 1 decimal place.

The side length of the square is the square root of 100, or 10 cm.

The diagonal of the square is the Hypotenuse of the right triangle with sides 10 c/m and 10 cm.

The length of the diagonal of the square is 14.1, to 1 decimal place.