

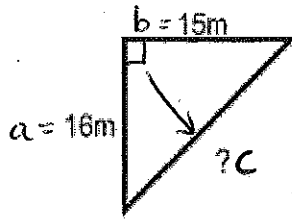
Name: Answers

Date: _____

Class: _____

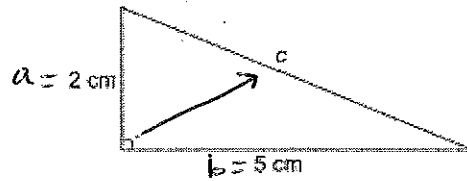
Pythagorean Theorem Practice

1. Find the length of the indicated side in each triangle. Estimate any non-perfect lengths to the nearest tenth.



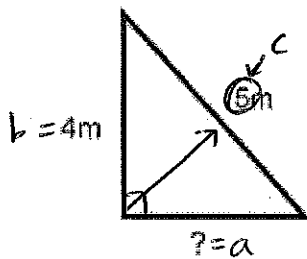
$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 16^2 + 15^2 &= c^2 \\
 256 + 225 &= c^2 \\
 \sqrt{481} &= \sqrt{c^2} \\
 \sqrt{481} &= c
 \end{aligned}$$

$21.9 \approx c$



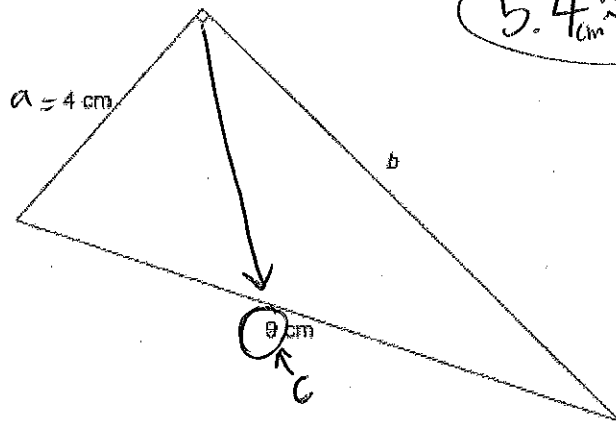
$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 2^2 + 5^2 &= c^2 \\
 4 + 25 &= c^2 \\
 \sqrt{29} &= \sqrt{c^2} \\
 \sqrt{29} &= c
 \end{aligned}$$

$5.4 \approx c$



$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 a^2 + 4^2 &= 5^2 \\
 a^2 + 16 &= 25 \\
 -16 & \quad -16 \\
 \sqrt{a^2} &= \sqrt{9} \\
 a &= \sqrt{9} \quad a = 3m
 \end{aligned}$$

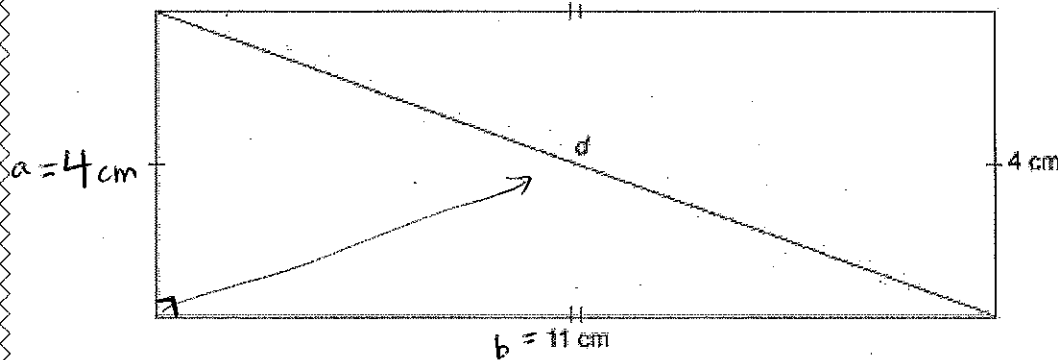
$a = 3m$



$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 4^2 + b^2 &= 9^2 \\
 16 + b^2 &= 81 \\
 -16 & \quad -16 \\
 \sqrt{b^2} &= \sqrt{65} \\
 b &= \sqrt{65}
 \end{aligned}$$

$b \approx 8.1cm$

2. Find the length of the diagonal, d , in this rectangle.



$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 4^2 + 11^2 &= c^2 \\
 16 + 121 &= c^2 \\
 \sqrt{137} &= \sqrt{c^2} \\
 \sqrt{137} &= c \quad c \approx 11.7cm
 \end{aligned}$$

$c \approx 11.7cm$

3. Determine whether a triangle with each set of side lengths is a right triangle.

a) 7 cm, 7 cm, and 10 cm

$$a^2 + b^2 = c^2$$

$$7^2 + 7^2 = 10^2$$

$$49 + 49 = 100$$

98 = 100 X not a right triangle

b) 8 cm, 6 cm, and 10 cm

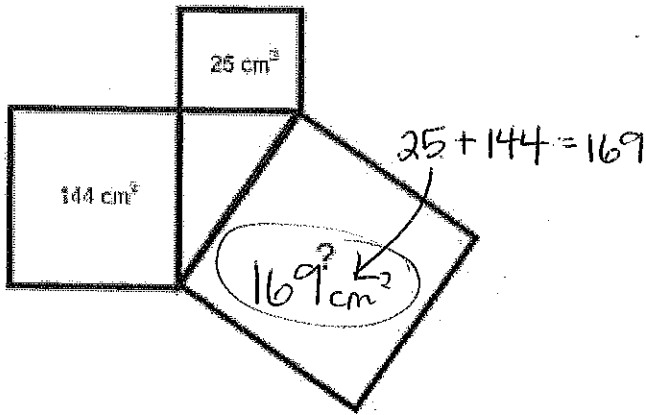
$$a^2 + b^2 = c^2$$

$$8^2 + 6^2 = 10^2$$

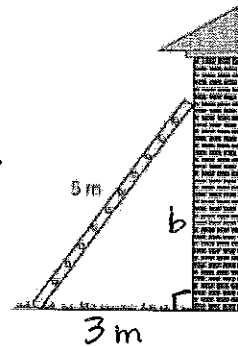
$$64 + 36 = 100$$

100 = 100 ✓ right triangle

4. Find the area of the missing square.



5. A 5-m ladder leans against a house. It is 3 m from the base of the wall. How high does the ladder reach?



$$a^2 + b^2 = c^2$$

$$3^2 + b^2 = 5^2$$

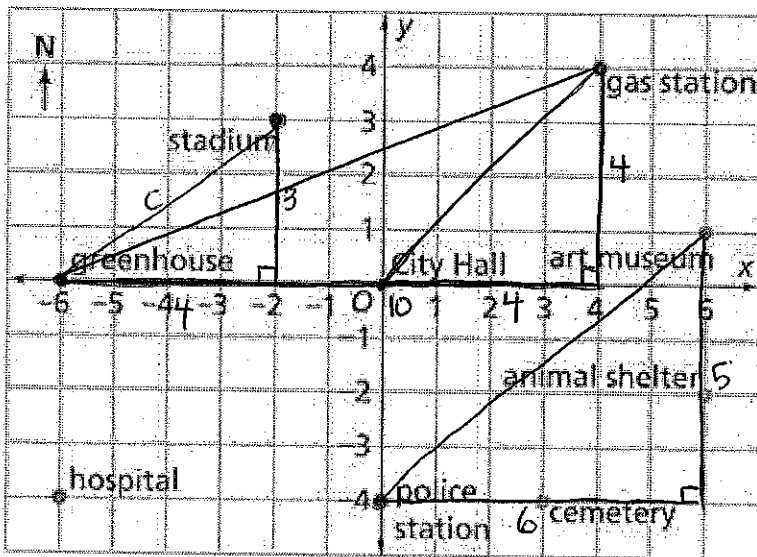
$$9 + b^2 = 25$$

$$-9$$

$$\sqrt{b^2} = \sqrt{16}$$

b = 4 m

For problems 6-9, use the map of Euclid shown below. Find the exact flying distance in blocks between each pair of landmarks without using a ruler.



6. Greenhouse and Stadium

$$a^2 + b^2 = c^2$$

$$3^2 + 4^2 = c^2$$

$$9 + 16 = c^2$$

$$25 = c^2$$

$$\sqrt{c^2} = \sqrt{25}$$

$$c = \sqrt{25}$$

$$c = 5$$

7. Police Station and Art Museum

$$a^2 + b^2 = c^2$$

$$5^2 + 6^2 = c^2$$

$$25 + 36 = c^2$$

$$61 = c^2$$

$$\sqrt{c^2} = \sqrt{61}$$

$$c = \sqrt{61}$$

$$c \approx 7.8$$

8. City Hall and Gas Station

$$a^2 + b^2 = c^2$$

$$4^2 + 4^2 = c^2$$

$$16 + 16 = c^2$$

$$32 = c^2$$

$$\sqrt{c^2} = \sqrt{32}$$

$$c = \sqrt{32}$$

$$c \approx 5.7$$

9. Greenhouse and Gas Station

$$a^2 + b^2 = c^2$$

$$4^2 + 10^2 = c^2$$

$$16 + 100 = c^2$$

$$116 = c^2$$

$$\sqrt{c^2} = \sqrt{116}$$

$$c = \sqrt{116}$$

$$c \approx 10.8$$