$\qquad$ Date $\qquad$

## Pythagorean Theorem: Find the Length of the Hypotenuse (page 1)

Find the length of the hypotenuse of each triangle.
Example A:

5 m

| $a^{2}+b^{2}$ | $=c^{2}$ |  | Write the Pythagorean Theorem |
| ---: | :--- | ---: | :--- |
| $5^{2}+12^{2}$ | $=c^{2}$ |  | Substitute 5 for $a$ and 12 for $b$ |
| $25+144$ | $=c^{2}$ |  | Evaluate |
| 169 | $=c^{2}$ |  | Add |
| $\sqrt{169}$ | $=\sqrt{c^{2}}$ |  | Take positive square root of each side |
| 13 | $=c$ |  | Simplify |

> Therefore, the length of the hypotenuse is 13 meters.

## Example B:

$$
a^{2}+b^{2}=c^{2} \quad \text { Write the Pythagorean Theorem }
$$



$$
\begin{aligned}
1^{2}+(\sqrt{5})^{2} & =c^{2} & & \text { Substitute } 1 \text { for } a \text { and } \sqrt{5} \text { for } b \\
1+5 & =c^{2} & & \text { Evaluate } \\
6 & =c^{2} & & \text { Add } \\
\sqrt{6} & =\sqrt{c^{2}} & & \text { Take positive square root of each side } \\
\sqrt{6} & =c & & \text { Simplify }
\end{aligned}
$$

Therefore, the length of the hypotenuse is $\sqrt{6}$ units or approximately 2.45 units.

Name $\qquad$ Period $\qquad$ Date $\qquad$

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Therefore, the length of the hypotenuse is 13 meters.

## Example B:



$$
a^{2}+b^{2}=c^{2} \quad \text { Write the Pythagorean Theorem }
$$

$$
1^{2}+(\sqrt{5})^{2}=c^{2} \quad \text { Substitute } 1 \text { for } a \text { and } \sqrt{5} \text { for } b
$$

$$
1+5=c^{2} \quad \text { Evaluate }
$$

$$
6=c^{2} \quad \text { Add }
$$

$$
\sqrt{6}=\sqrt{c^{2}} \quad \text { Take positive square root of each side }
$$

$$
\sqrt{6}=c \quad \text { Simplify }
$$

Therefore, the length of the hypotenuse is $\sqrt{6}$ units or approximately 2.45 units.

## Pythagorean Theorem: Find the Length of the Hypotenuse (page 2)

Find the length of the hypotenuse of each triangle.
1.

2.

3.

4.


Pythagorean Theorem: Find the Length of the Hypotenuse (page 2)
Find the length of the hypotenuse of each triangle.
1.

2.

3.

4.
6


