$\qquad$
$\qquad$ Date $\qquad$

## Pythagorean Theorem: Finding the Length of a Leg (page 1)

Find the missing length of each triangle.

Example $A$
5 m
$a^{2}+b^{2}=c^{2}$
$5^{2}+b^{2}=13^{2} \quad$ Substitute 5 for $a$ and 13 for $c$
$25+b^{2}=169 \quad$ Evaluate
$-25=-25 \quad$ Subtract 25 from both sides

$$
b^{2}=144
$$

$\sqrt{b^{2}}=\sqrt{144}$ Take positive square root of each side
$b=12 \quad$ Simplify

Example B

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

|  | $a^{2}+(1.2)^{2}=(1.3)^{2}$ | Substitute 1.2 for $b$ and 1.3 for $b$ |
| :---: | :---: | :---: |
| , | $a^{2}+1.44=1.69$ | Evaluate |
| 1.3 | $-1.44=-1.44$ | Subtract 1.44 from both sides |
|  | $a^{2}=0.25$ |  |
|  | $\sqrt{a^{2}}=\sqrt{0.25}$ | Take positive square root of each side |
|  | $a=0.5$ | Simplify |

Therefore, the length of the missing side a is 0.5 units.

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

## Pythagorean Theorem: Finding the Length of a Leg (page 1)

Find the missing length of each triangle.
Example $A$

$$
\begin{aligned}
a^{2}+b^{2} & =c^{2} & & \text { Write the Pythagorean Theorem } \\
5^{2}+b^{2} & =13^{2} & & \text { Substitute } 5 \text { for } a \text { and } 13 \text { for } c \\
25+b^{2} & =169 & & \text { Evaluate } \\
-25 & =-25 & & \text { Subtract } 25 \text { from both sides } \\
b^{2} & =144 & & \\
\sqrt{b^{2}} & =\sqrt{144} & & \text { Take positive square root of each side } \\
b & =12 & & \text { Simplify }
\end{aligned}
$$

Example B

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



$$
\begin{aligned}
a^{2}+(1.2)^{2} & =(1.3)^{2} \\
a^{2}+1.44 & =1.69 \\
-1.44 & =-1.44 \\
a^{2} & =0.25 \\
\sqrt{a^{2}} & =\sqrt{0.25} \\
a & =0.5
\end{aligned}
$$

Substitute 1.2 for $b$ and 1.3 for $b$
Evaluate
Subtract 1.44 from both sides

Take positive square root of each side Simplify

Therefore, the length of the missing side a is 0.5 units.

## Pythagorean Theorem: Finding the Length of a Leg (page 2)

Find the missing length of each triangle.

3.

4.


Pythagorean Theorem: Finding the Length of a Leg (page 2)
Find the missing length of each triangle.
1.

3.


4.


