Pythagore	an Theorem: F	ind t	he Length of the Hypotenuse (page	e 1)
Find the length of th	e hypotenuse of ea	ch tria	ngle.		
Example A: 12 m c 5 m	$a^{2} + b^{2} = c^{2}$ $5^{2} + 12^{2} = c^{2}$ $25 + 144 = c^{2}$ $169 = c^{2}$ $\sqrt{169} = \sqrt{c^{2}}$ $13 = c$	Subs Evalu Add	e positive square root of each side		terefore, the length f the hypotenuse is 13 meters.
Example B: $\sqrt{5}$ 1 x	$a^{2} + b^{2} = a$ $1^{2} + (\sqrt{5})^{2} = a$ $1 + 5 = a$ $6 = a$ $\sqrt{6} = a$ $\sqrt{6} = a$	c^2 c^2 c^2 $\sqrt{c^2}$	Write the Pythagorean Theorem Substitute 1 for <i>a</i> and $\sqrt{5}$ for <i>b</i> Evaluate Add Take positive square root of each st Simplify	ide	Therefore, the length of the hypotenuse is $\sqrt{6}$ units or approximately 2.45 units.



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

Find the length of the hypotenuse of each triangle.

Example A:

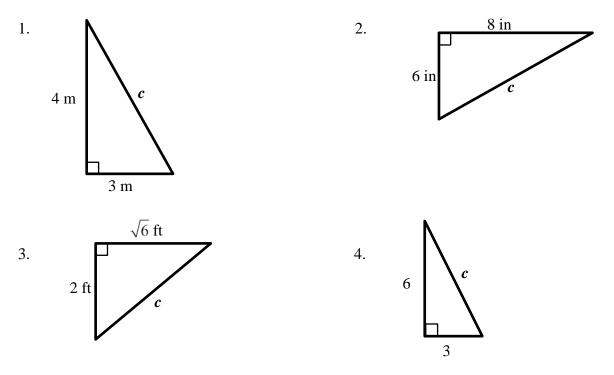
12 m	$a^2 + b^2 = c^2$	Write the Pythagorean Theorem			
	$5^2 + 12^2 = c^2$	Substitute 5 for a and 12 for b			
	$25 + 144 = c^2$	Evaluate			
		$169 = c^2$	Add	Therefore, the length	
		$\sqrt{169} = \sqrt{c^2}$	Take positive square root of each side	of the hypotenuse is 13 meters.	
	5 m	13 = c	Simplify	15 meters.	
-	1 5				

Example B: $a^2 + b^2 = c^2$ Write the Pythagorean Theorem Therefore, the $1^2 + \left(\sqrt{5}\right)^2 = c^2$ Substitute 1 for *a* and $\sqrt{5}$ for *b* length of the $1 + 5 = c^2$ hypotenuse is $\sqrt{6}$ Evaluate $6 = c^2$ units or Add approximately $\sqrt{6} = \sqrt{c^2}$ Take positive square root of each side 2.45 units. $\sqrt{6} = c$ Simplify



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

Find the length of the hypotenuse of each triangle.



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

Find the length of the hypotenuse of each triangle.

