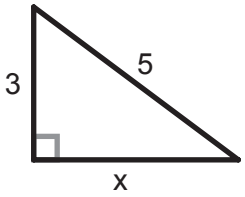
math Antics
Exercises

Name:

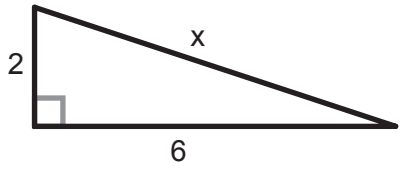
Date:

The Pythagorean Theorem

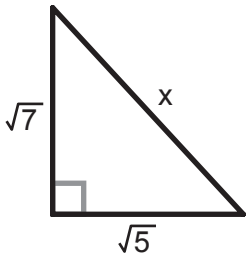
1 Find the length of the unknown side ‘x’.



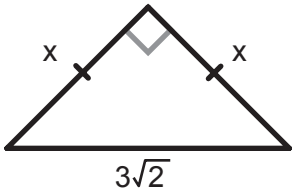
2 Find the length of the unknown side ‘x’.



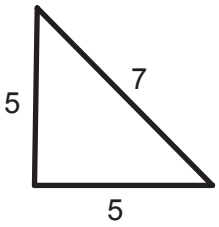
3 Find the length of the unknown side ‘x’.



4 Find the length of the unknown side ‘x’.



5 Is this a RIGHT triangle?



6 If the longest side of a triangle is 10 meters, and the other two sides are 6 and 8 meters long, is it a RIGHT triangle?

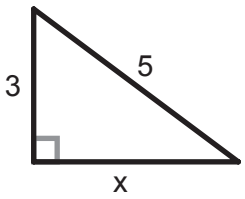
math Antics
Exercises

Name: _____

Date: _____

The Pythagorean Theorem

1 Find the length of the unknown side 'x'.



$3^2 + x^2 = 5^2$

$9 + x^2 = 25$

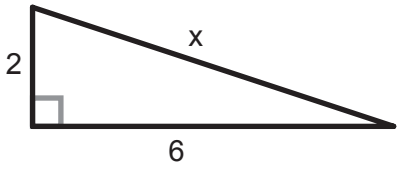
$-9 \quad -9$

$x^2 = 16$

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

$x = 4$

2 Find the length of the unknown side 'x'.



$2^2 + 6^2 = x^2$

$4 + 36 = x^2$

$40 = x^2$

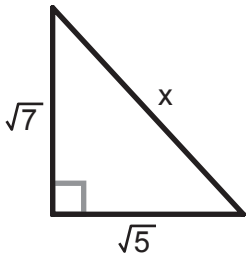
$\sqrt{x^2} = \sqrt{40}$

$x = \sqrt{40}$

or $2\sqrt{10}$

or 6.32...

3 Find the length of the unknown side 'x'.



$\sqrt{7}^2 + \sqrt{5}^2 = x^2$

$7 + 5 = x^2$

$12 = x^2$

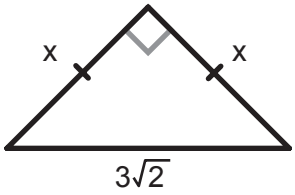
$\sqrt{x^2} = \sqrt{12}$

$x = \sqrt{12}$

or $2\sqrt{3}$

or 3.46...

4 Find the length of the unknown side 'x'.



$x^2 + x^2 = (3\sqrt{2})^2$

$2x^2 = (9 \cdot 2)$

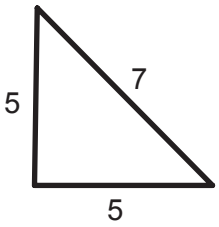
$\frac{2x^2}{2} = \frac{18}{2}$

$x^2 = 9$

$\sqrt{x^2} = \sqrt{9}$

$x = 3$

5 Is this a RIGHT triangle?



Check: $5^2 + 5^2 \stackrel{?}{=} 7^2$

$25 + 25 \stackrel{?}{=} 49$

$50 \neq 49$ No

6 If the longest side of a triangle is 10 meters, and the other two sides are 6 and 8 meters long, is it a RIGHT triangle?

Check: $6^2 + 8^2 \stackrel{?}{=} 10^2$

$36 + 64 \stackrel{?}{=} 100$

$100 = 100$ Yes

See Video for step-by-step solutions to each problem.

math Antics Worksheets

Name:

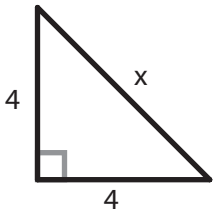
Date:

Finding an Unknown Side - Set 1

G-PT 1

Instructions: For each right triangle, use the Pythagorean Theorem to find the length of the unknown side 'x'. (You can use a calcuator for the arithmetic if you want to.)

1



$4^2 + 4^2 = x^2$

$16 + 16 = x^2$

$32 = x^2$

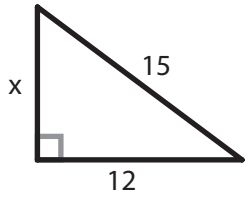
$\sqrt{x^2} = \sqrt{32}$

$x = \sqrt{32}$

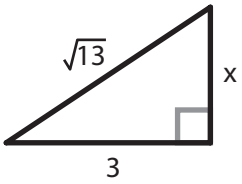
or $4\sqrt{2}$

or 5.656...

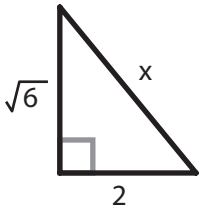
2



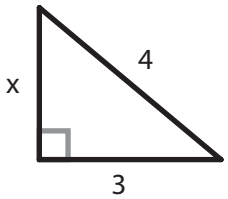
3



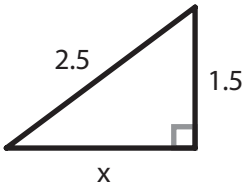
4



5



6



math Antics Worksheets

Name:

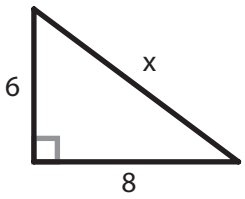
Date:

Finding an Unknown Side - Set 2

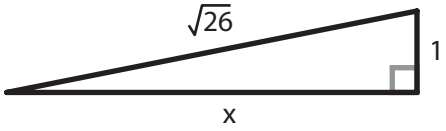
G-PT 2

Instructions: For each right triangle, use the Pythagorean Theorem to find the length of the unknown side 'x'. (You can use a calcuator for the arithmetic if you want to.)

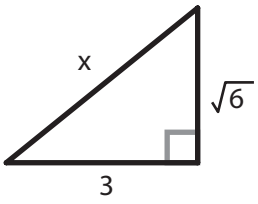
1



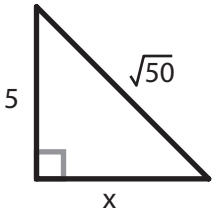
2



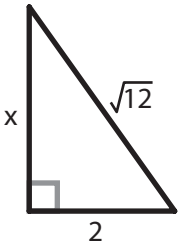
3



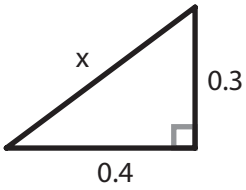
4



5



6



math Antics Worksheets

Name:

Date:

Is it a *right* triangle?

G-PT 3

Instructions: Use the Pythagorean Theorem to test the triangles shown or described in each problem below.

1 If a triangle has sides that are 12, 10 and 6 meters long, is it a right triangle?

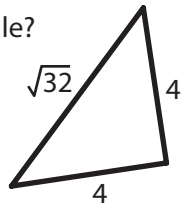
NOTE: when plugging the three sides into the test equation, always make the longest side 'c'.

Test: $6^2 + 10^2 \stackrel{?}{=} 12^2$

$36 + 100 \stackrel{?}{=} 144$

$136 \neq 144$ Nope!

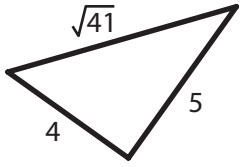
2 Is this a right triangle?



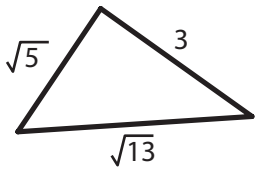
3 Is a triangle with side lengths of 4, 5, and 6 inches a right triangle?

4 A triangle has side lengths that are 7 cm, 7 cm and 11cm. Is it a right triangle ?

5 Is this a right triangle?



6 Is this a right triangle?



math Antics Worksheets

Name: _____

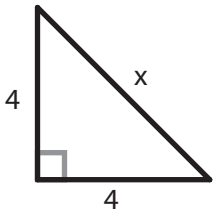
Date: _____

Finding an Unknown Side - Set 1

G-PT 1

Instructions: For each right triangle, use the Pythagorean Theorem to find the length of the unknown side 'x'. (You can use a calcuator for the arithmetic if you want to.)

1



$4^2 + 4^2 = x^2$

$16 + 16 = x^2$

$32 = x^2$

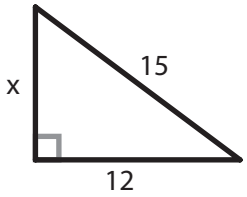
$\sqrt{x^2} = \sqrt{32}$

$x = \sqrt{32}$

or $4\sqrt{2}$

or 5.656...

2



$x^2 + 12^2 = 15^2$

$x^2 + 144 = 225$

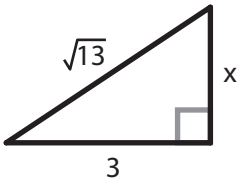
$-144 \quad -144$

$x^2 = 81$

$\sqrt{x^2} = \sqrt{81}$

$x = 9$

3



$x^2 + 3^2 = \sqrt{13}^2$

$x^2 + 9 = 13$

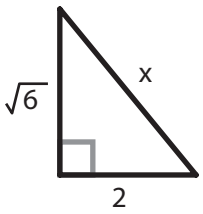
$-9 \quad -9$

$x^2 = 4$

$\sqrt{x^2} = \sqrt{4}$

$x = 2$

4



$\sqrt{6}^2 + 2^2 = x^2$

$6 + 4 = x^2$

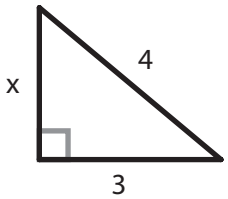
$10 = x^2$

$\sqrt{x^2} = \sqrt{10}$

$x = \sqrt{10}$

or 3.162...

5



$x^2 + 3^2 = 4^2$

$x^2 + 9 = 16$

$-9 \quad -9$

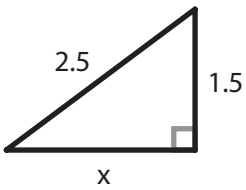
$x^2 = 7$

$\sqrt{x^2} = \sqrt{7}$

$x = \sqrt{7}$

or 2.645...

6



$x^2 + 1.5^2 = 2.5^2$

$x^2 + 2.25 = 6.25$

$-2.25 \quad -2.25$

$x^2 = 4$

$\sqrt{x^2} = \sqrt{4}$

$x = 2$

math Antics Worksheets

Name: _____

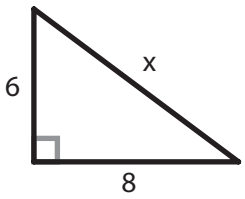
Date: _____

Finding an Unknown Side - Set 2

G-PT 2

Instructions: For each right triangle, use the Pythagorean Theorem to find the length of the unknown side 'x'. (You can use a calcuator for the arithmetic if you want to.)

1



$6^2 + 8^2 = x^2$

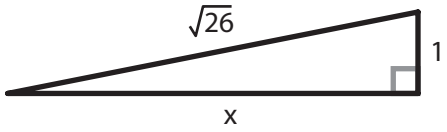
$36 + 64 = x^2$

$100 = x^2$

$\sqrt{x^2} = \sqrt{100}$

$x = 10$

2



$x^2 + 1^2 = \sqrt{26}^2$

$x^2 + 1 = 26$

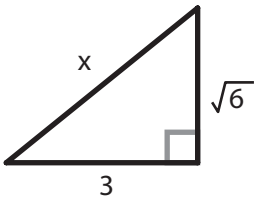
$-1 \quad -1$

$x^2 = 25$

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

$x = 5$

3



$\sqrt{6}^2 + 3^2 = x^2$

$6 + 9 = x^2$

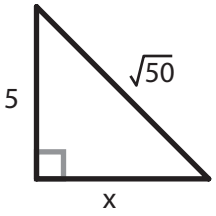
$15 = x^2$

$\sqrt{x^2} = \sqrt{15}$

$x = \sqrt{15}$

or 3.872...

4



$5^2 + x^2 = \sqrt{50}^2$

$25 + x^2 = 50$

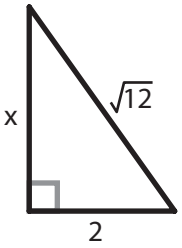
$-25 \quad -25$

$x^2 = 25$

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

$x = 5$

5



$x^2 + 2^2 = \sqrt{12}^2$

$x^2 + 4 = 12$

$-4 \quad -4$

$x^2 = 8$

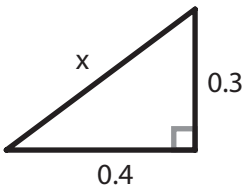
$\sqrt{x^2} = \sqrt{8}$

$x = \sqrt{8}$

or $2\sqrt{2}$

or 2.828...

6



$0.3^2 + 0.4^2 = x^2$

$0.09 + 0.16 = x^2$

$0.25 = x^2$

$\sqrt{x^2} = \sqrt{0.25}$

$x = 0.5$

or $\sqrt{0.25}$

math Antics Worksheets

Name: _____

Date: _____

Is it a *right* triangle?

G-PT 3

Instructions: Use the Pythagorean Theorem to test the triangles shown or described in each problem below.

1 If a triangle has sides that are 12, 10 and 6 meters long, is it a right triangle?

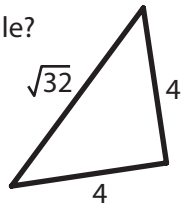
NOTE: when plugging the three sides into the test equation, always make the longest side 'c'.

Test: $6^2 + 10^2 \stackrel{?}{=} 12^2$

$36 + 100 \stackrel{?}{=} 144$

$136 \neq 144$ Nope!

2 Is this a right triangle?



Test: $4^2 + 4^2 \stackrel{?}{=} \sqrt{32}^2$

$16 + 16 \stackrel{?}{=} 32$

$32 = 32$ Yes

3 Is a triangle with side lengths of 4, 5, and 6 inches a right triangle?

Test: $4^2 + 5^2 \stackrel{?}{=} 6^2$

$16 + 25 \stackrel{?}{=} 36$

$41 \neq 36$ No

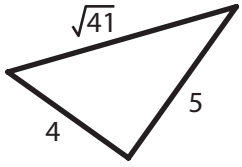
4 A triangle has side lengths that are 7 cm, 7 cm and 11cm. Is it a right triangle ?

Test: $7^2 + 7^2 \stackrel{?}{=} 11^2$

$49 + 49 \stackrel{?}{=} 121$

$98 \neq 121$ No

5 Is this a right triangle?

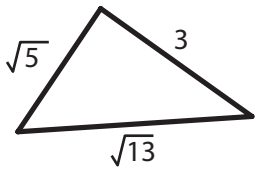


Test: $4^2 + 5^2 \stackrel{?}{=} \sqrt{41}^2$

$16 + 25 \stackrel{?}{=} 41$

$41 = 41$ Yes

6 Is this a right triangle?



Test: $3^2 + \sqrt{5}^2 \stackrel{?}{=} \sqrt{13}^2$

$9 + 5 \stackrel{?}{=} 13$

$14 \neq 13$ No