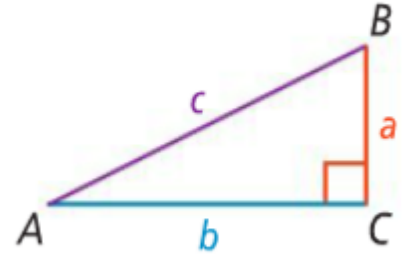


## 7.1 The Pythagorean Theorem and its Converse

Pythagorean Theorem:

In other words...

Pythagorean Triple:

Round to the nearest tenth

Leave in simplest radical form

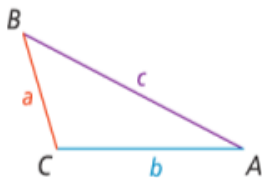
Converse of the Pythagorean Theorem:

Are the following right triangles?

Offshoots of the Converse to the Pythagorean Theorem.

If ...

$$c^2 > a^2 + b^2$$

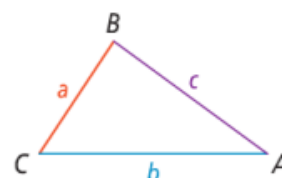


Then ...

 $\triangle ABC$  is obtuse

If ...

$$c^2 < a^2 + b^2$$



Then ...

 $\triangle ABC$  is acute

Tell whether the triangle is acute, obtuse or right.

Mr. Kelly is 125 feet directly north of Mr. Brust(they both think they are Jedis). Directly to the east of Mr. Kelly 500 feet away is Darth Vader...which "Jedi" is closer to catching Darth Vader? How much closer?

Try these...

1) Find  $x$ , leave answer in simplest radical form.

2) Classify the triangle as right, acute or obtuse.

Summary:

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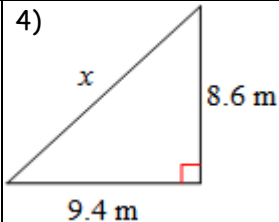
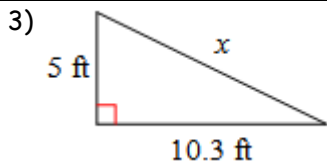
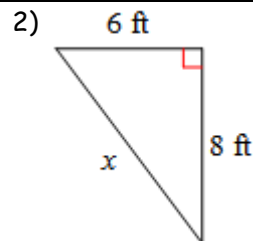
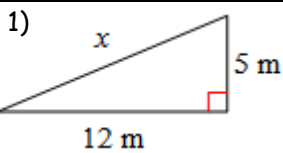
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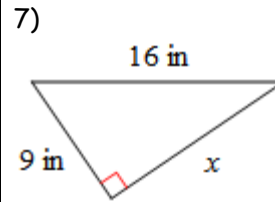
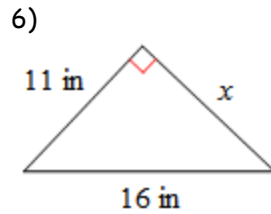
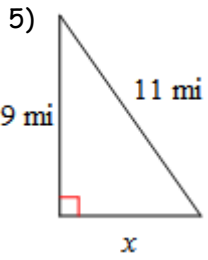
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### 7.1 Practice Problems

Directions: Find the missing side of each triangle. Round your answers to the nearest tenth if necessary.



Directions: Find the missing side of each triangle. Leave your answers in simplest radical form.



Directions: State if the three side lengths form a right triangle.

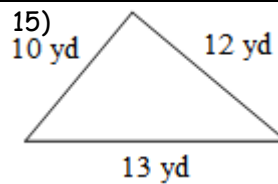
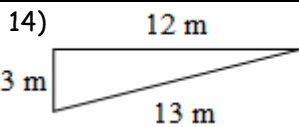
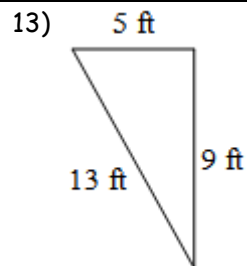
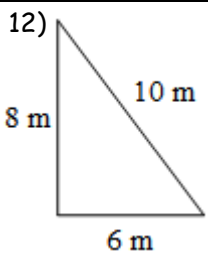
8) 6, 8, 12

9) 9, 12, 15

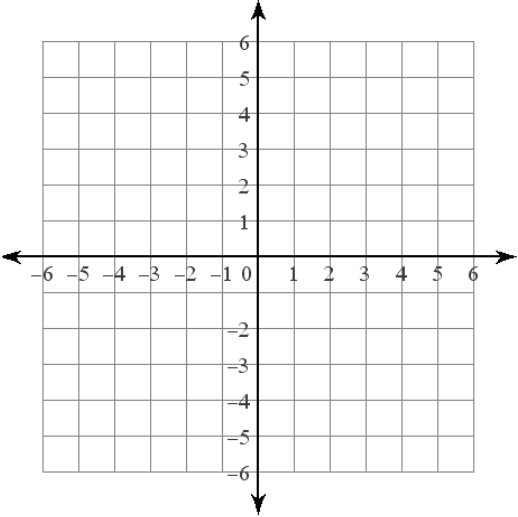
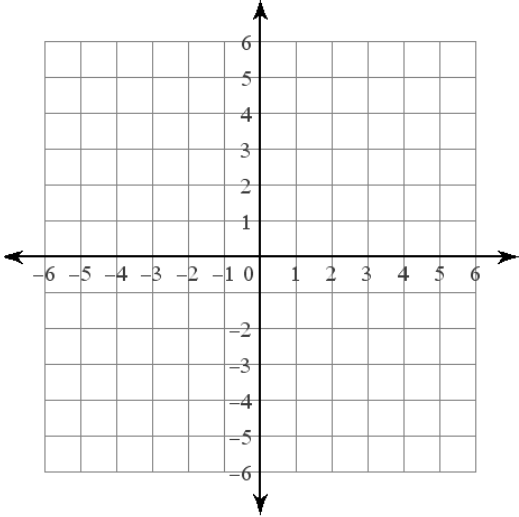
10) 10,  $\sqrt{69}$ , 13

11) 2,  $\sqrt{9}$ ,  $\sqrt{14}$

Directions: State if each triangle is acute, obtuse, or right.

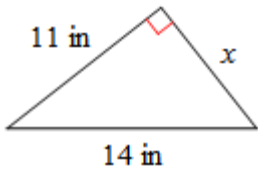


Algebra Review

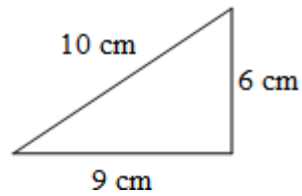
Solve: $10n + 3 \leq 23$	Solve: $-153 > 3 - 6(8 - 6b)$	Factor: $x^2 - 64$
Factor: $2v^2 - 17v + 30$	Graph: $2x + 3y = 9$ 	Graph: $2x - y = -5$ 

7.1 APPLICATION and EXTENSION

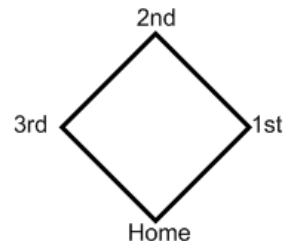
1) Find  $x$ , leave in simplest radical form.



2) Classify as either acute, right or obtuse.



3) The Algebras Softball team had tryouts last weekend and Mr. Brust wanted to play catcher. Mr. Kelly started laughing and said that there is no way Mr. Brust could throw the ball from home to 2<sup>nd</sup> base to catch someone stealing. If a baseball diamond is a square and the length of the sides is 90 feet, then how far does Mr. Brust need to be able to throw the ball?



4) Mr. Kelly has a huge wall that is 16 feet tall built around his entire back yard. One day he locks himself out and realizes he has to clear the wall. He has a 17 foot tall ladder so he feels as though it should be a piece of cake. When he takes the ladder over he realizes that the closest he can get the ladder is 10 feet from the wall because of some shrubs.

a) Draw a picture of the situation.

b) Will the ladder reach the top of the wall? If not how many feet short is it?

5) The evil Sinestro is 10,000 feet directly above and about to DESTROY the Hall of Justice. Superman is 15,450 feet to the east of the Hall of Justice when he sees him and the Green Lantern is 4,500 feet to the west.

a) If Superman flies directly towards Sinestro how many feet away is he?

b) If the Green Lantern flies directly towards Sinestro how many feet away is he?

c) If Superman can fly 3500 feet per second and the Green Lantern can fly 2000 feet per second who will get to Sinestro first?

