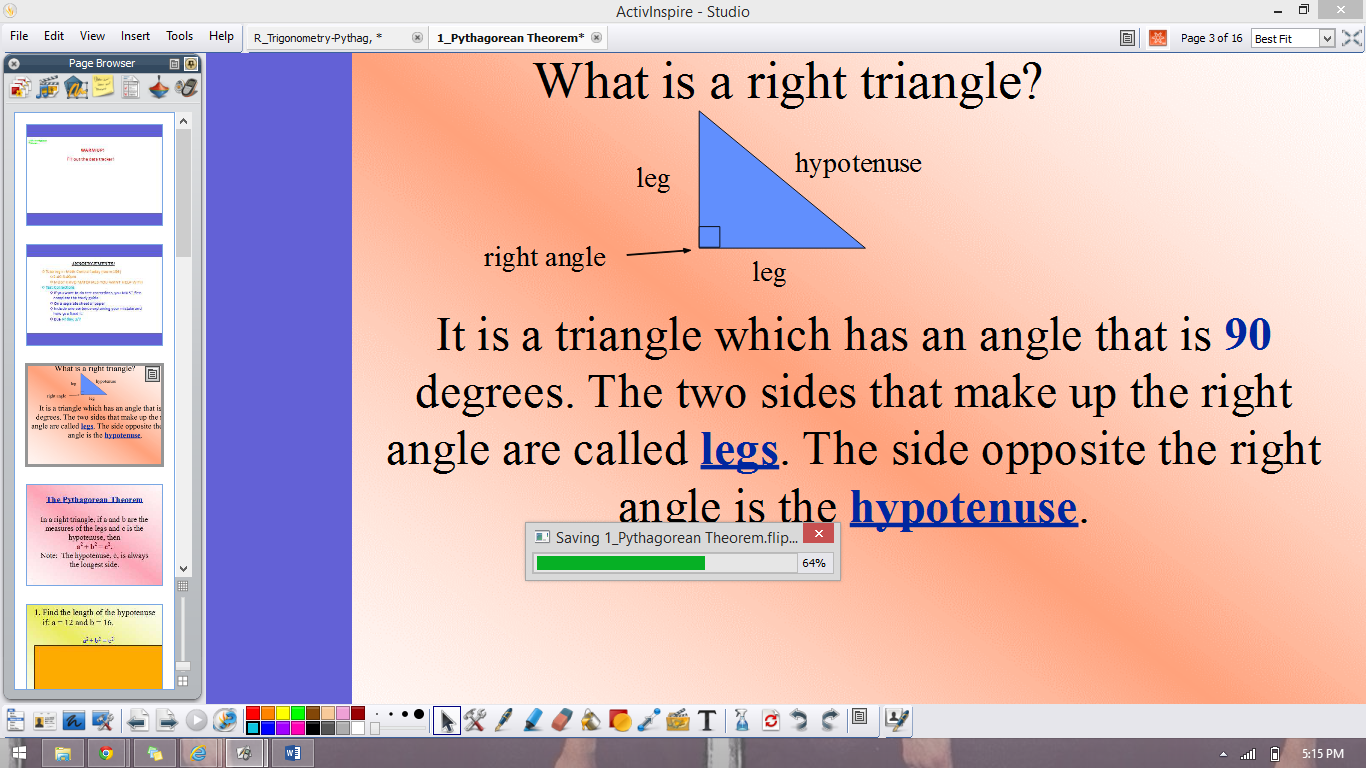
**Unit 6 #1 Pythagorean Theorem**

**What is a right triangle?**

It is a triangle which has an angle that is \_\_\_\_\_\_\_\_ degrees. The two sides that make up the right angle are called \_\_\_\_\_\_\_\_\_\_\_\_. The side opposite the right angle is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Example:** The measures of the sides of a right triangle are 6, 9, and . Is this a right triangle?

First ask yourself, “What is the longest side?” *Take any square roots to get the decimals! \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

Second, list the sides in order from least to greatest. *The biggest side is your hypotenuse! \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

Then plug into the Pythagorean Theorem and see if it works!

**Practice Problem:** A triangle has sides measuring , 7, and 3. Is this a right triangle?

**Application of the Pythagorean Theorem** The Pythagorean Theorem can be used to determine the distance between two points. Recall that the formula is \_\_\_\_\_\_ + \_\_\_\_\_\_ = \_\_\_\_\_\_

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|  | B |  |  |  |  |  |  |  |
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|  |  |  |  |  |  | A |  |  |

Example 1: Find the distance between point *B* and point *A* given that the measurement of each square is 1 inch long and 1 inch wide.

STEP 1: Draw a straight line between the two points. Call this side c.

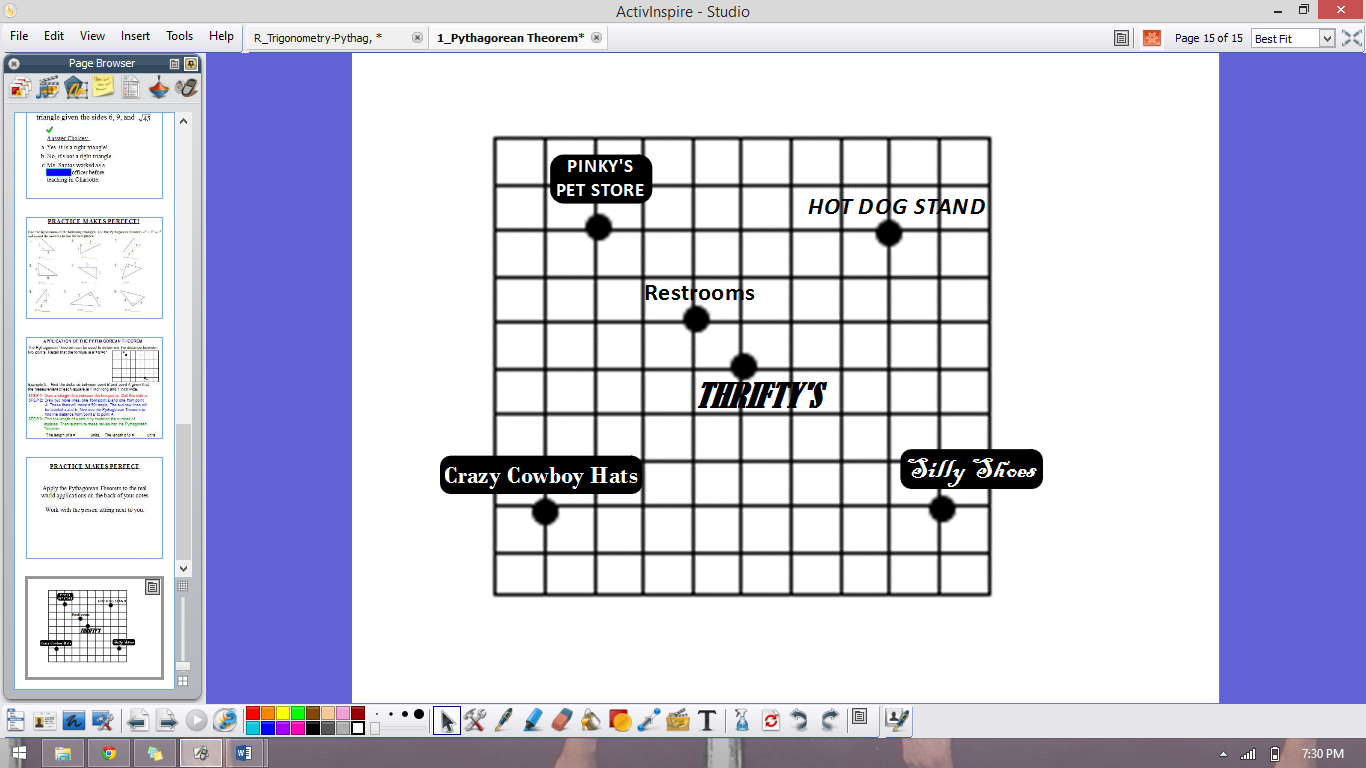
STEP 2: Draw two more lines, one from point *B* and one from point   
 *A*. These lines will make a 90o angle. The two new lines will   
 be labeled *a* and *b*. Now use the Pythagorean Theorem to   
 find the distance from point *B* to point *A*.

STEP 3: Find the length of *a* and *b* by counting the number of squares

Then substitute these values into the Pythagorean Theorem.

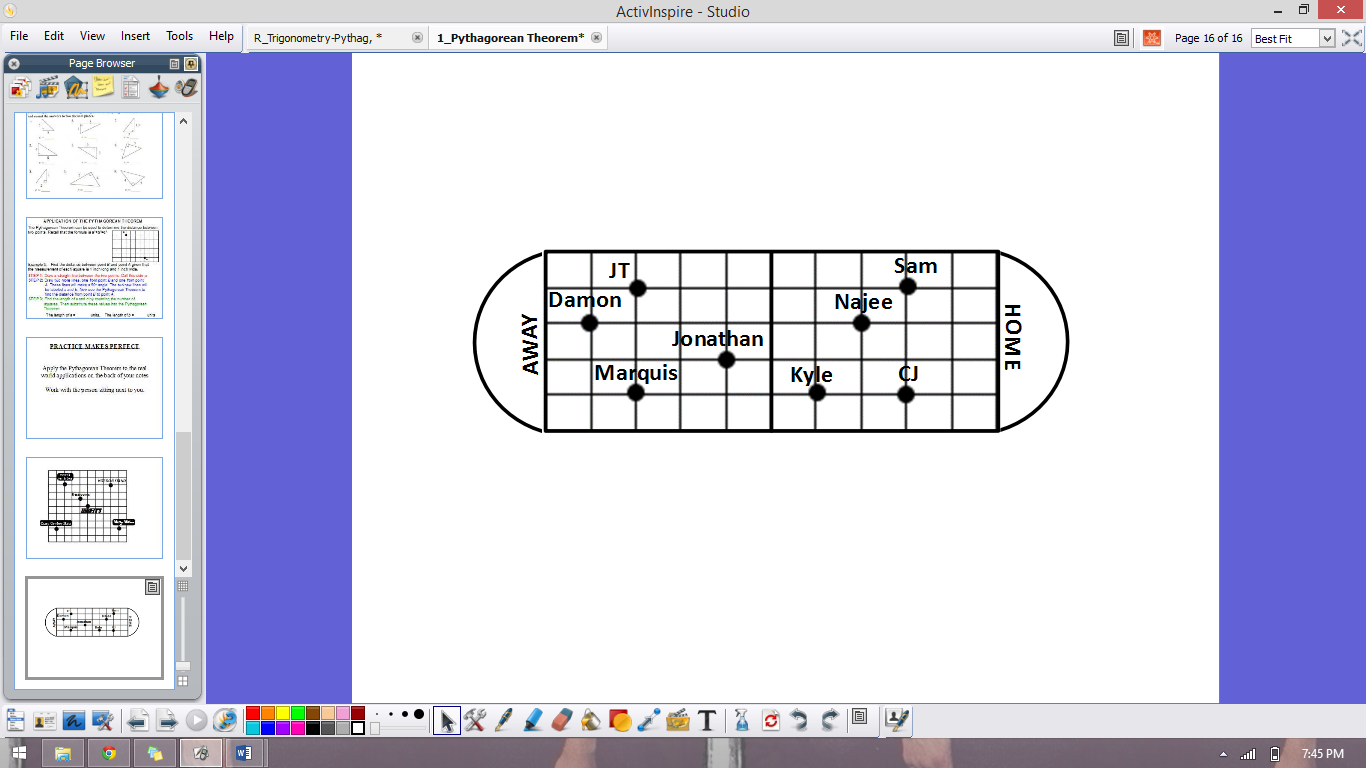
* **The length of *a* = \_\_\_\_\_ units. The length of *b* = \_\_\_\_\_ units.**

**Practice Problems:** Use the Pythagorean Theorem to find the distances. If necessary, round to the nearest hundredth.

1. Shown is a diagram of the mall. Each square is 25 ft. by 25 ft.

a. Marty walks from Pinky’s Pet Store to the restroom to wash   
 his hands. How far did he walk?

b. Betty needs to meet her friend at Silly Shoes, but she wants   
 to get a hot dog first. If Betty is at Thrifty’s, how far will she  
 walk to meet her friend?

2. Shown is a diagram of the football field. Each square is 10 yards by 10 yards.  
 a. Jonathan must throw the football to a teammate   
 before he is tackled. If CJ is the only person open,  
 how far must Jonathan be able to throw the ball?

b. Marquis wants to throw to Damon for a touchdown. How far must he throw to reach Damon?