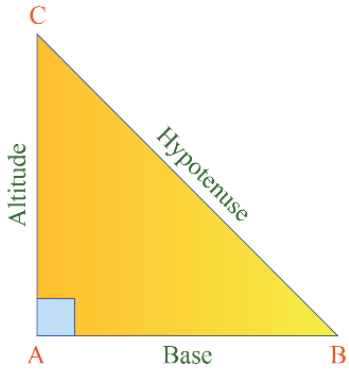
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Pythagorean Theorem and Distance Formula Worksheet

Objective: You will learn how to come up with the distance formula that you can use for any two points on xy-coordinate.

Warm-Up



1. What is the Pythagorean Theorem? What can we solve using it?

2. How do I plot coordinates on a grid/graph?

Activity #1 (use the coordinate grid)

1. Jin is located at coordinate (-1, -3) and Kariana lives at (4, 2) on the xy-plane. This is the same plane where the cool mathematicians live at coordinate (4, 3) and are having a party. **Plot the coordinate points on the graphing sheet.**

    a. How many units does Kariana need to drive to get to the cool math party? In what direction?

    b. How many units does Jin need to drive to get to the cool math party? In what direction?

    c. How did you know? Write your explanation in full sentences. **Discuss with your partner and be prepared to share.**

Activity #2 (using the same graph)

2. Jin is super anti-social, so he doesn't want to go to the party. Instead, he wants to hang out with Kariana at Kariana's house. What would be the fastest path for Jin?

    a. Draw the path directly onto the graph. **Compare with your group.**

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b. How can you measure the distance between Jin and Kariana? **Discuss with your partner and be prepared to share.**

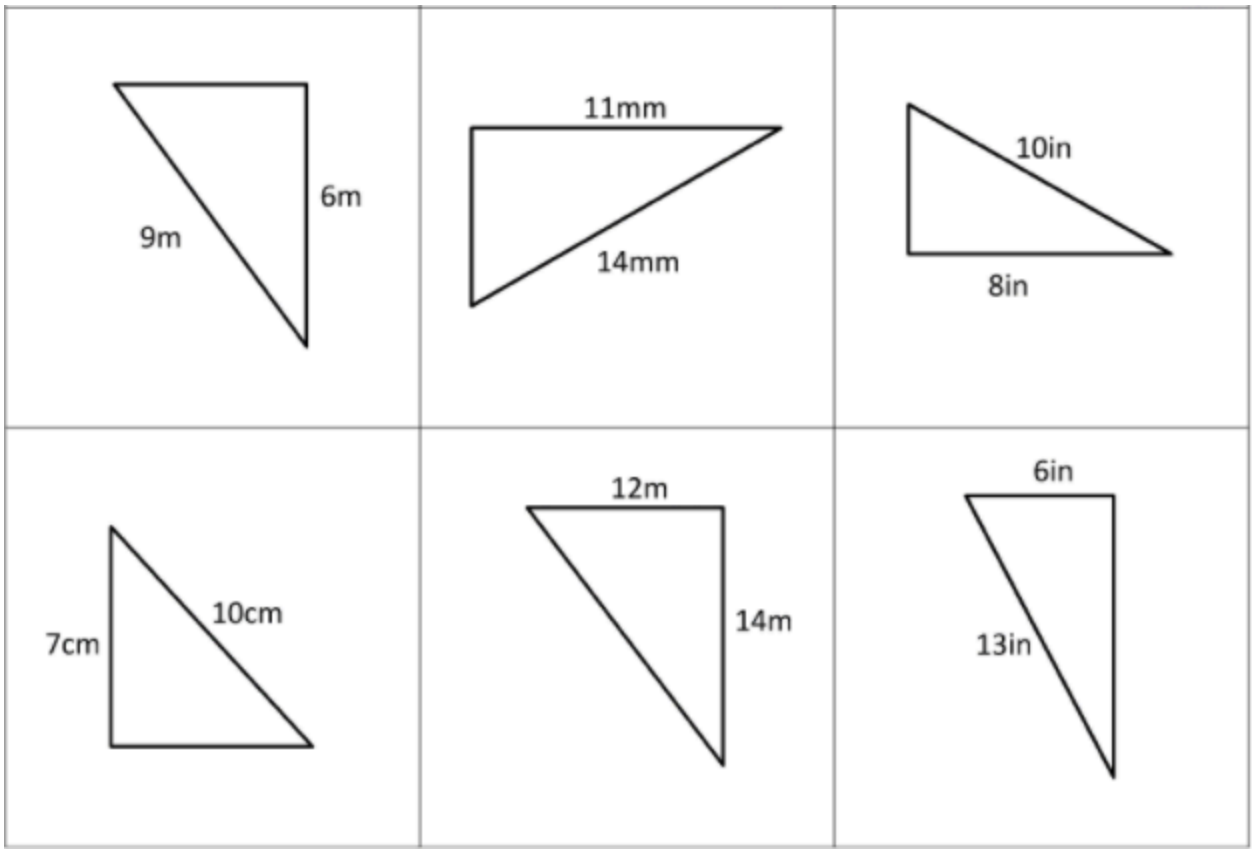
3. Connect the lines to create a _____ triangle. What can we use to solve for the length of the hypotenuse?

   a. Label CMP to Jin as *A*. How many units is it?

   b. Label Kariana to CMP as *B*. How many units is it?

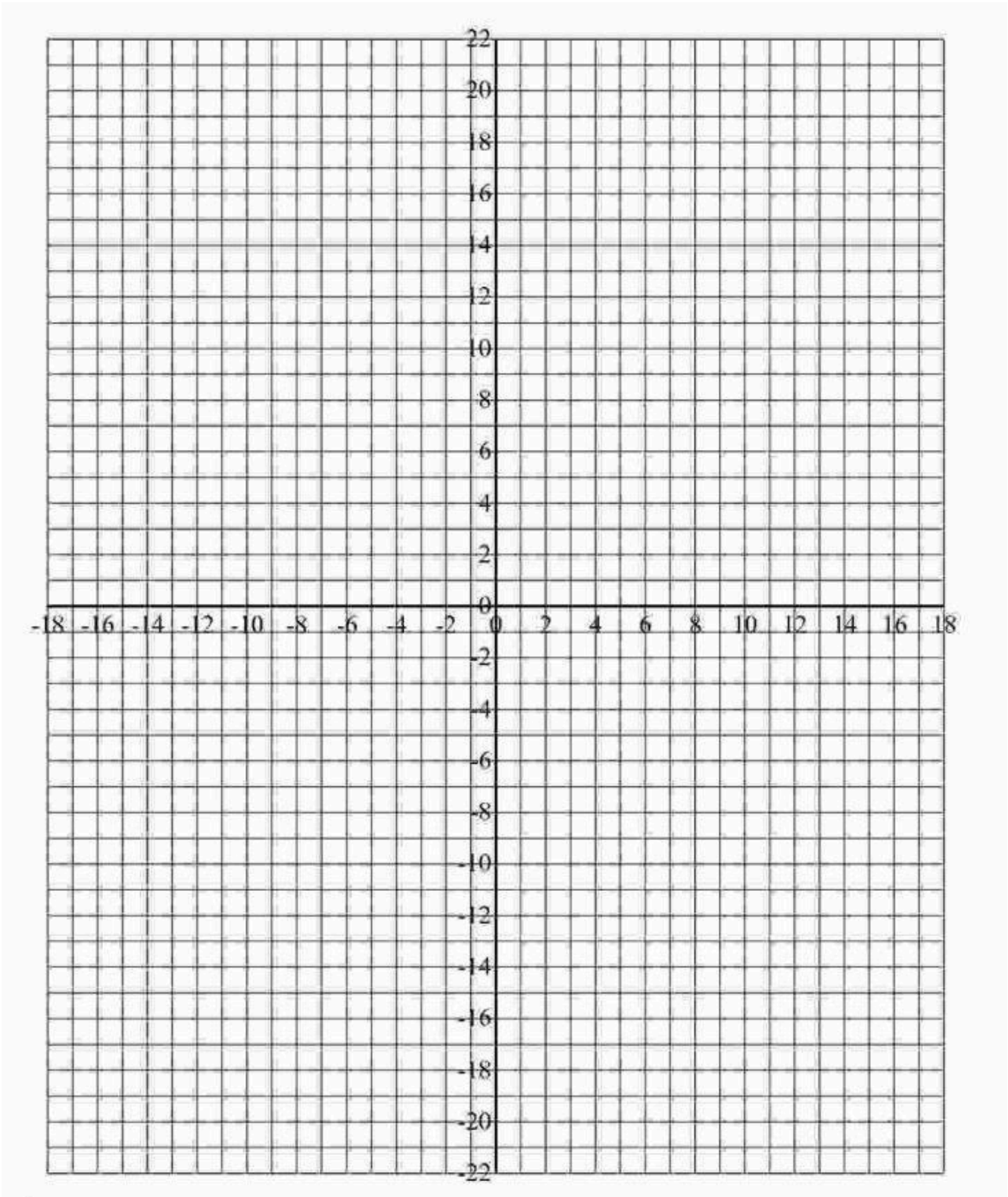
   c. Label Jin to Kariana as *C*. The distance of C is…

Pythagorean Theorem Practice



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Activity #3

We found the distance between the two points.

Let's use generic numbers. Label these coordinates.

Point 1 (L): (x1, y1)

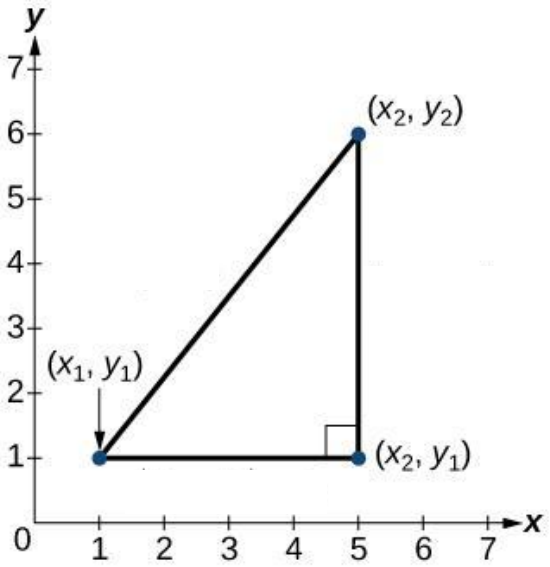
Point 2 (M): (x2, y2)

Point 3 (N): (x2, y1)

Using these points:

a. What's the distance/length of LN?

b. What's the distance/length of MN?



3. Using the Pythagorean Theorem, find the length of the hypotenuse (LM). **Show your work!**

4. Can I use this strategy for all distances on x-y coordinate planes? Explain the strategy in your own words.

Distance Formula & Practice

The distance between 2 points (x1, y1) and (x2, y2) is given by the formula:

_____.

1. Find the distance between the two points A (-4, -1) and B (1, 2)

2. Find the distance between the two points T (2, 7) and H (-2, -1).