Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Table #: \_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_

**3.4B Application Problems Using Similar Triangles\_Classwork**

*Objective: apply similar triangles to solve missing length. CC.SS.8.G.5*

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| 1. If a tree casts a 24-foot shadow at the same time that a yardstick casts a 2-foot shadow, find the height of the tree.

3 ft2 ft24 ftx ft |
| 1. A bush is sighted on the other side of a canyon. Find the width of the canyon.

100 ft10 ft7.5 ftx |
| 1. You place a mirror on the ground 6 feet from the lamppost. You move back 3 feet and see the top of the lamppost in the mirror. If you are 5 feet tall, what is the height of the lamppost?

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| 1. Ramon places a mirror on the ground 45 ft from the base of a geyser. He walks backward until he can see the top of the geyser in the middle of the mirror. At that point, Ramon’s eyes are 6 ft above the ground and he is 7.5 ft from the mirror. Use similar triangles to find the height of the geyser.

**x ft****45 ft****7.5 ft****6 ft** |

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| **Example 1:** Find the height of the giraffe in the diagram below. Hint: convert into inches when solving to problem, but your final answer should be in feet.  |
| **Example 2:** On level ground, the base of a tree is 20 ft from the bottom of a 48-ft flagpole. The tree is shorter than the pole. At a certain time, their shadows end at the same point 60 ft from the base of the flagpole. How tall is the tree? Hint: draw two triangles and label again. |
| **Example 3:**Tell whether the triangles or similar or not similar.

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| --- | --- | --- |
| 1. | 2. | 3. |

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## Warm Up:

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| 1.The triangles are similar. Find x. | 2. The triangles are similar. Find x. |
| 3. Use the figure to find the measures of the numbered angles.  Match the correct explanation to the angles below. Write the letter on the lines below.STATEMENTS: EXPLANATIONS:$∠$ 1 is \_\_\_\_ a. corresponding with $∠ 5$$∠$ 2 is \_\_\_\_ b. corresponding with $∠ 6$$∠$ 3 is \_\_\_\_ c. corresponding with $∠ 7$$∠$ 4 is \_\_\_\_ d. corresponding with the given angle$∠$ 5 & 7 are \_\_\_\_ e. vertical to the given angle$∠$ 6 is \_\_\_\_ f. supplementary to the given angle. |