Geometry Chapter 12 Worksheet DO NOT WRITE ON THIS PAPER

Solve for x:

1) $\frac{x+3}{3} = \frac{10+4}{4}$

2) $\frac{2}{x} = \frac{x}{50}$ a. Draw a right triangle with hypotenuse of 52cm that with altitude dividing hypotenuse into 50 and 2 cm. Which segment has length x?

2) b. A postcard in 6 in by 4in. A commercial printing shop will enlarge it to any size up to 3 ft on the longer dimension. What are the dimensions of the largest possible enlargement for this postcard? Solve by proportion.

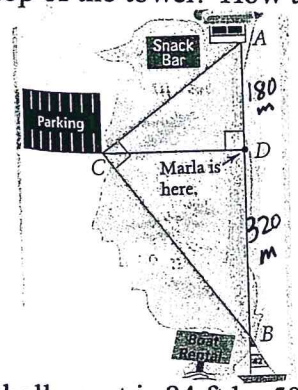
3) A map of Louisiana is drawn to the scale 1 in = 40 mi. On the map, the distance from Lake Charles to Baton Rouge is about $3\frac{1}{4}$ in. About how far apart are the two cities? Solve by proportion.

4) Are two isosceles triangles always similar? Explain. Two equilateral triangles? Explain.

5) Find the geometric mean of 4 and 10 in simplified radical form.

6) Draw JKLM with vertices J(-2,-2), K(6,2), L(6,4), and M(-2,4). Then draw its image J'K'L'M' under the dilation with scale factor ½. How are JKLM and J'K'L'M' related? Explain. Is J'K'L'M' an enlargement or reduction of JKLM?

7) To find the height of a fire tower, Latisha places a mirror on the ground 40 ft from the base of the tower. Latisha's eyes are 5.5 ft above the ground. When Latisha stands 4 ft from the mirror, she can see the top of the tower. How tall is the fire tower? Sketch. Solve with a proportion.



8) At the parking lot of a State Park, the path to the snack bar and the path to the boat rental shop meet at a right angle. Marla walks straight from the parking lot to the ocean. If she is 180 m from the snack bar and 320 m from the boat rentals when she gets to the ocean, how far did she walk from the parking lot? How far is it to the snack bar from the parking lot? How far is it from the parking lot to the boat rentals?

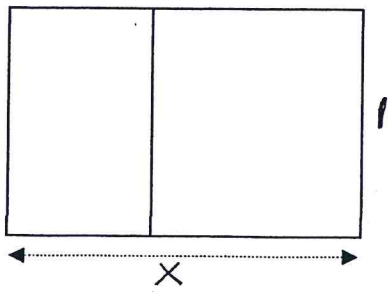
9) A basketball court is 84 ft by 50 ft. Choose a scale and draw a scale drawing of a basketball court. Label drawing with your scale. Explain how you chose the scale for your drawing.

10) A Golden Rectangle is a rectangle that can be divided into a square and a rectangle that is similar to the original rectangle. The ratio of the length of a Golden Rectangle to the width is called the Golden Ratio. To find the Golden Ratio, you can find the length x of a Golden Rectangle whose width is 1.

(Golden Ratio = x/1 = x).

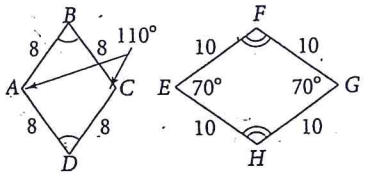
Find x by solving the proportion comparing length to width of each rectangle:

$$\frac{\text{length of large rectangle } x}{\text{width of large rectangle } 1} = \frac{\text{length of sm rect}}{\text{width of sm rect}}$$



Are the polygons similar? If so, write a similarity statement and give the ratio.

11)



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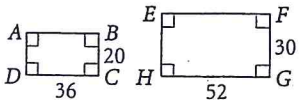
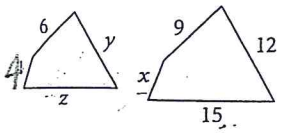


The polygons are similar. Find the values of the variables. (Write & solve proportions.)

13)



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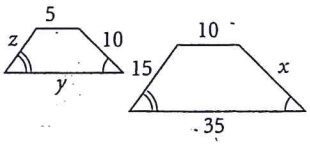
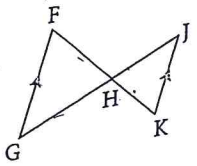


Are the triangles similar? If so, name the similarity conjecture you used; write a similarity statement.

15)



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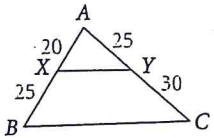
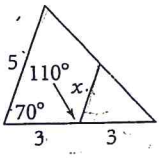


Solve for x or find the distance represented by x. Write proportions & solve.

17)



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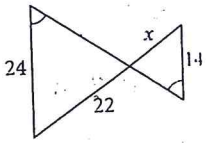

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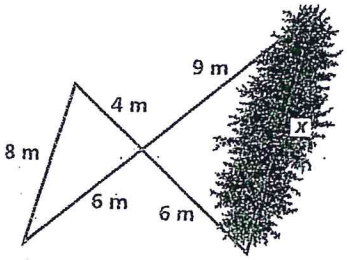

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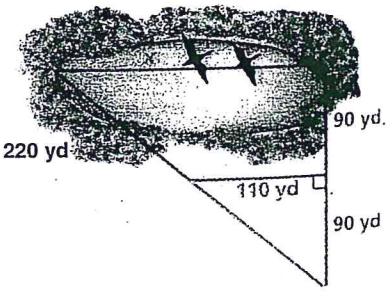

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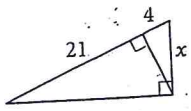

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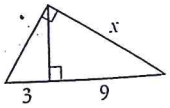

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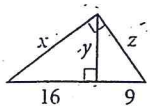
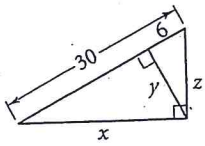
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