

Name: \_\_\_\_\_ Class: \_\_\_\_\_ Date: \_\_\_\_\_

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### Geometry Second Semester Review

#### Short Answer

1. Identify the pairs of congruent angles and corresponding sides.



2. Determine whether the rectangles are similar. If so, write the similarity ratio and a similarity statement.

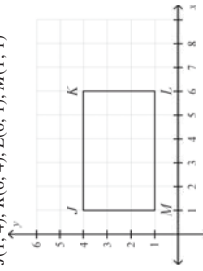


3. A video game designer is modeling a tower that is 320 ft high and 260 ft wide. She creates a model so that the similarity ratio of the model to the tower is  $\frac{1}{500}$ . What is the height and the width of the model in inches?

4. Apply the dilation  $D$  to the polygon with the given vertices. Name the coordinates of the image points.

$$D: (x, y) \rightarrow (3x, 3y)$$

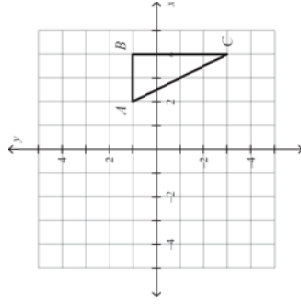
$$J(1, 4), K(6, 4), L(6, 1), M(1, 1)$$



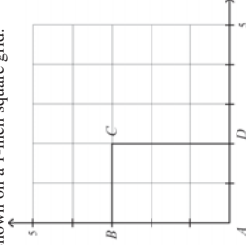
5. Apply the dilation  $D$  to the polygon with the given vertices. Name the coordinates of the image points. Identify and describe the transformation.

$$D: (x, y) \rightarrow (4x, 4y)$$

$$A(2, 1), B(4, 1), C(4, -3)$$

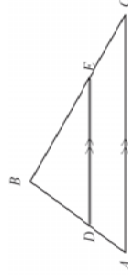


6. Tamika is resizing a photograph with a height of 3 inches and a width of 2 inches. The original photo  $ABCD$  is shown on a 1-inch square grid.



Show the image,  $A'B'C'D'$ , on the grid after a dilation with scale factor  $\frac{2}{3}$ .

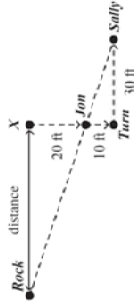
7. Explain why the triangles are similar and write a similarity statement.



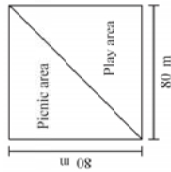
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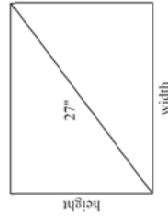
8. To find out how wide a river is, Jon and Sally mark an  $X$  at the spot directly across from a big rock on the other side of the river. Then they walk in a straight line along the river, perpendicular to the straight line between the  $X$  and the rock. After walking for 20 feet Jon stops while Sally continues along the straight line for another 10 feet. Then she makes a 90 degree turn and walks for 30 feet. When she stops and looks at the rock she sees that the straight line from her to the rock passes through Jon. What is the distance from  $X$  to the rock?



9. A community is building a square park with sides that measure 80 meters. To separate the picnic area from the play area, the park is split by a diagonal line from opposite corners. Determine the approximate length of the diagonal line that splits the square. If necessary, round your answer to the nearest meter.



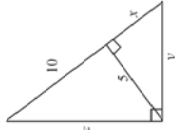
10. The size of a TV screen is given by the length of its diagonal. The screen aspect ratio is the ratio of its width to its height. The screen aspect ratio of a standard TV screen is 4:3. What are the width and height of a 27" TV screen? Round your answers to the nearest tenth of an inch.



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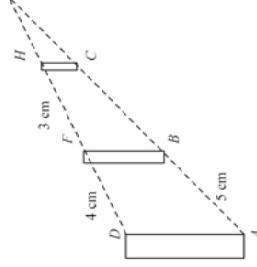
11. Find  $x$ ,  $y$ , and  $z$ . Give your answers in simplest radical form.



12. Find  $NP$ .



13. An artist used perspective to draw guidelines in her picture of a row of parallel buildings. How many centimeters is it from Point  $B$  to Point  $C$ ?



14. A tree is standing next to a 40-foot high building. The tree has an 18-foot shadow, while the building has a 16-foot shadow. How tall is the tree, rounded to the nearest foot?