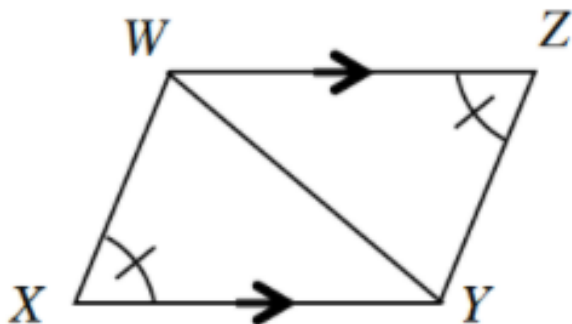
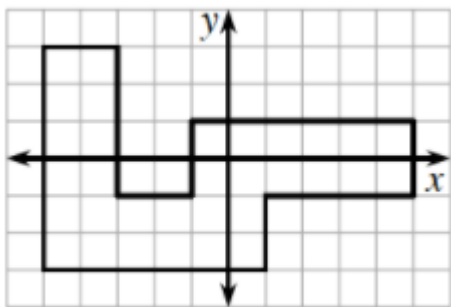


Chapter 2 Closure and Practice

1. Given the information in the diagram below, use a flowchart to prove that $\triangle XYW \cong \triangle ZWY$.

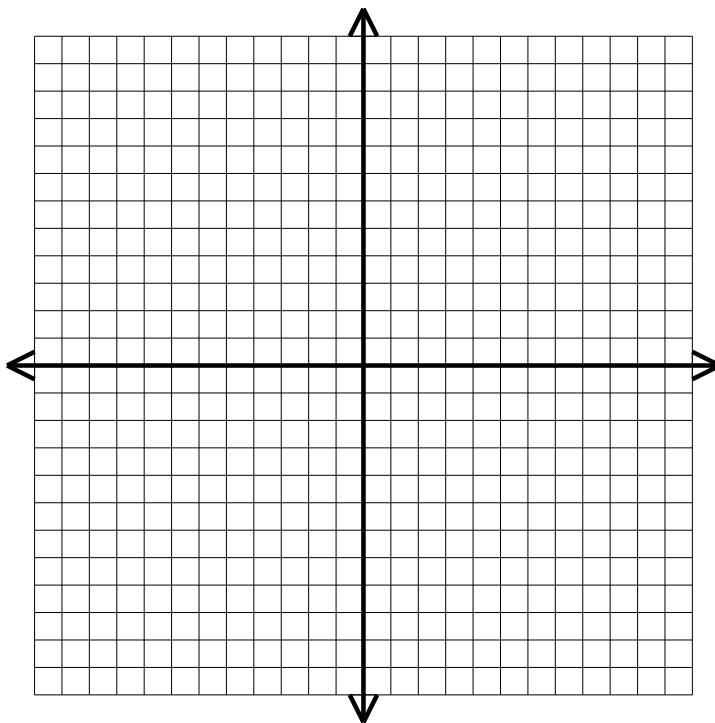


2. Examine the shape below:



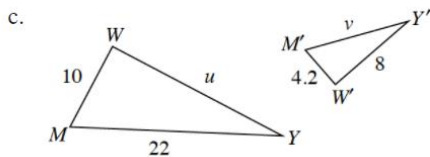
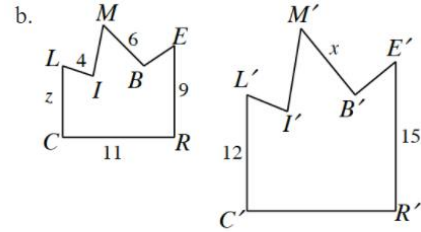
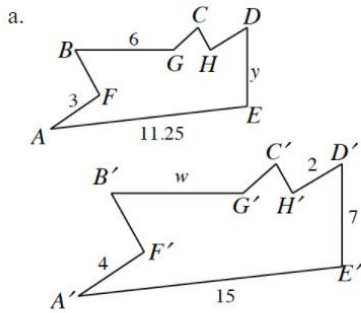
On the right, using two different colors

- Dilate this shape with a scale factor of 2.
- Dilate again, this time with a scale factor of $\frac{1}{2}$

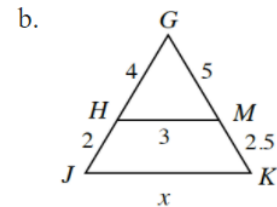
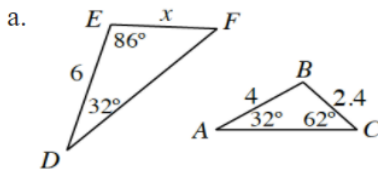


3. Each pair of figures below is similar.

What are the lengths of the unknown sides that are marked with a variable?



4. For each diagram below, write a similarity statement and explain how you know the triangles are similar. Then calculate the value of each variable.



5. Write the converse of each statement and determine whether or not the converse is true.

a. If two lines are parallel, then pairs of corresponding angles are congruent.

b. If the sum of $m\angle A$ and $m\angle B$ in $\triangle ABC$ is 110° , then $m\angle C=70^\circ$.

c. If alternate interior angles formed by two lines cut by a transversal are not congruent, then the two lines are not parallel.

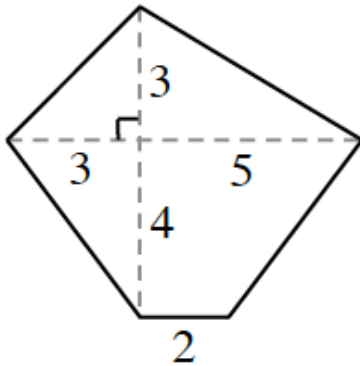
6. For each given set of numbers, determine if a triangle with those side lengths can be made or not. If a triangle can be made, determine if the triangle is a right triangle. Justify all answers.

a. 8,15,17

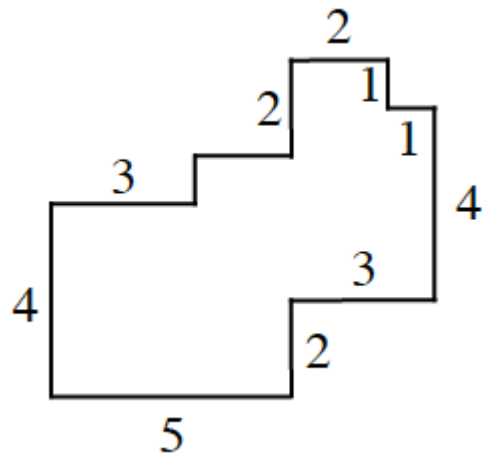
b. 8,12,4

7. Calculate the area and perimeter of each of the following polygons. In part (b), assume that all angles that appear to be right angles are right angles. Assume all lengths are in centimeters.

a.

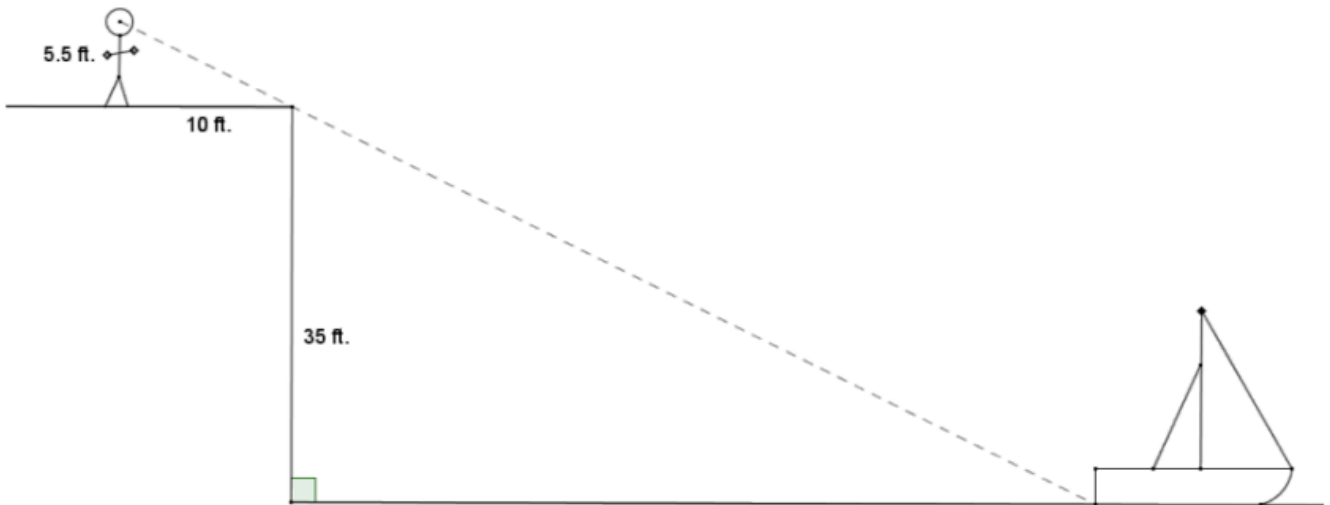


b.



8. Application of Similar Triangles

Catarina's boat has come untied and floated away on the lake. She is standing atop a cliff that is 35 feet above the water in a lake. If she stands 10 feet from the edge of the cliff, she can visually align the top of the cliff with the water at the back of her boat. Her eye level is $5\frac{1}{2}$ feet above the ground.



- Are the triangles in the diagram similar? Explain. If they are similar, state the triangle similarity theorem that justifies your response. Use colored pens or pencils to help identify the two triangles.
- Determine the distance from the **base of the cliff** to the boat.
- Determine the distance from the **edge of the cliff** to the boat. (Hint: you may have to use the Pythagorean Theorem!)