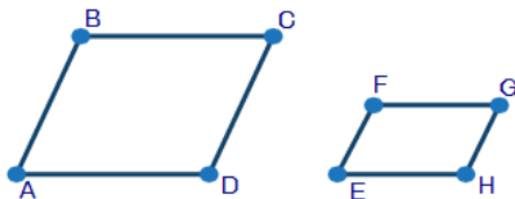


3.02 Similarity

Corresponding Sides and Angles Video [CLICK HERE](#)

Name the sides and angles that correspond:



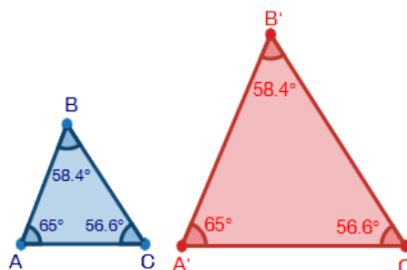
$$ABCD \sim EFGH$$

Side BC corresponds with _____ Angle A corresponds with _____

Side CD corresponds with _____ Angle B corresponds with _____

Corresponding Angles of Similar Polygons Video [CLICK HERE](#)

Similar polygons are polygons that have _____ and corresponding sides that are proportional to each other.



ABC and A'B'C' are _____ because

Angle A = 65 = _____

Angle _____ = 58.4 = Angle _____

Angle C = _____ = Angle C'

Corresponding Sides of Similar Polygons Video [CLICK HERE](#)

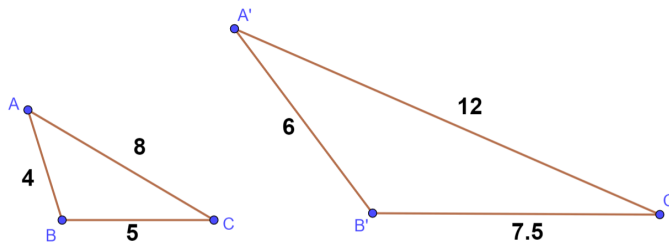
Similar polygons are polygons that have congruent corresponding angles and corresponding sides that are _____ to each other.

No matter what side AB and A'B' measure, they will have the same _____ to each other.

The scale factor is _____.

What is the ratio of the image to the preimage of the sides?

_____ : _____

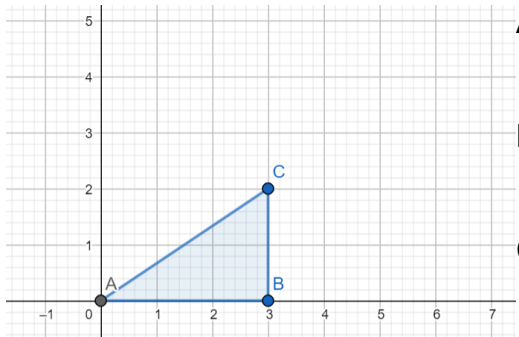


What is the ratio of $\triangle ABC$ to $\triangle A'B'C'$?

_____ : _____

Dilations and similar polygons Video [CLICK HERE](#)

Dilate the triangle below by a scale factor of 2.



A': _____

B': _____

C': _____

If the base of the triangle is now _____ as big, and the height of the triangle is also _____ as big, then the line that forms the third side would have to be twice as big too.

So, the original figure and the dilated figure have sides that are _____ so they are _____.

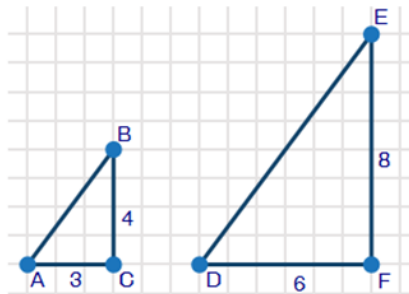
Using transformations to verify similarity Video [CLICK HERE](#)

In order for a figure to be similar, the figure **must** have:

- 1) ___ Congruent _____ corresponding angles
- 2) Corresponding sides are ___ porportional _____

To **verify** if two figures are similar using transformations:

- 1) Rigid _____ motions are used to verify corresponding angles are congruent.
- 2) ___ Dilations _____ is used to verify the corresponding sides are porportional.



Other Non-rigid Motions Video [CLICK HERE](#)

Stretch or Shrink a Figure

Not all non-rigid motions will result in similar figures. When we stretch or shrink a figure, it must have a stretch or shrink of the same ___ scale factor _____ in both the x and y-directions in order for the angle measures to stay the same.

For example:

After the transformation $(x, y) \rightarrow (2.5x, 2.5y)$ occurs the angle measures would be the _____, but after the transformation $(x, y) \rightarrow (2.5x, 3.5y)$ the angle measures would _____ be the same.

A dilation uses the same _____, therefore, it preserves angle measures.

Dilations from a point, not the origin Video [CLICK HERE](#)

To dilate from a point, **not the origin**, we would first need to find the distance from the center of dilation to each point. Then we multiply this distance by the scale factor.

Example:

Dilate ABC from point A using the scale factor 3.

$$A = (3,0)$$

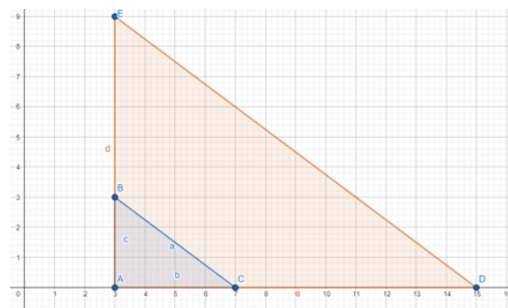
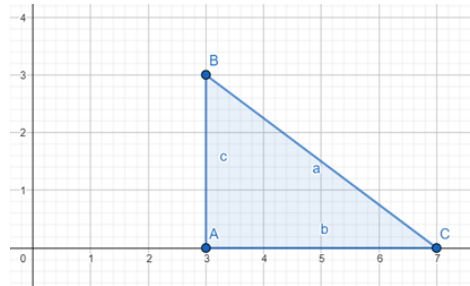
$$B = (3,3)$$

$$C = (7,0)$$

$$A' = (3_, 0_)$$

$$B' = (3_, 9_)$$

$$C' = (_15_, 0_)$$



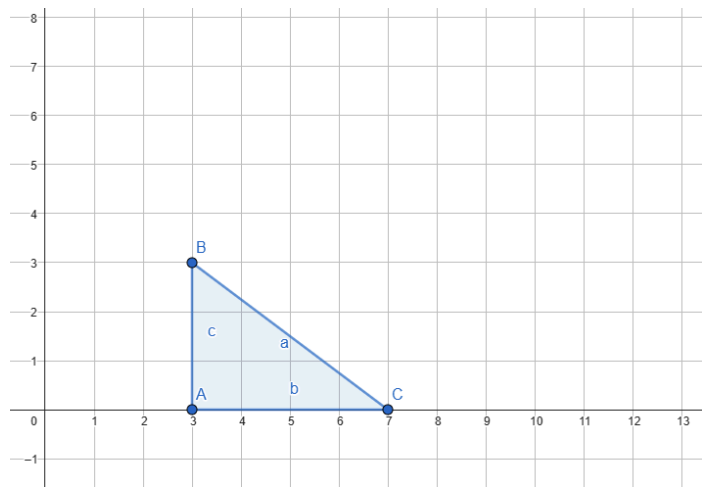
Try it out:

Dilate ABC from point (2, -1) using a scale factor of 2. What are the coordinates of A'B'C'?

$$A' (4,1)$$

$$B' (4,7)$$

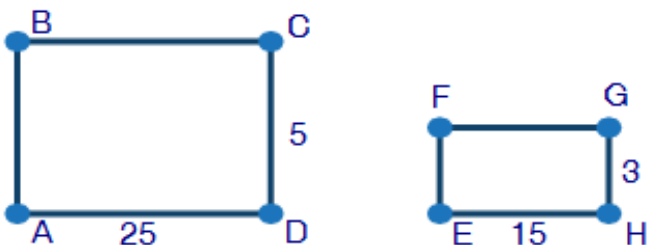
$$C' (12,1)$$



Practice

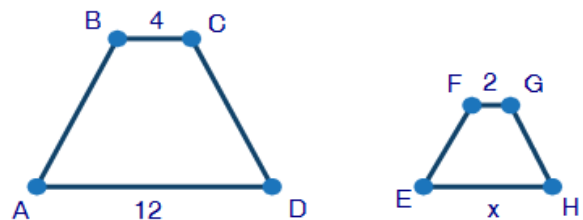
Question 1 Video [CLICK HERE](#)

Are these two shapes similar?



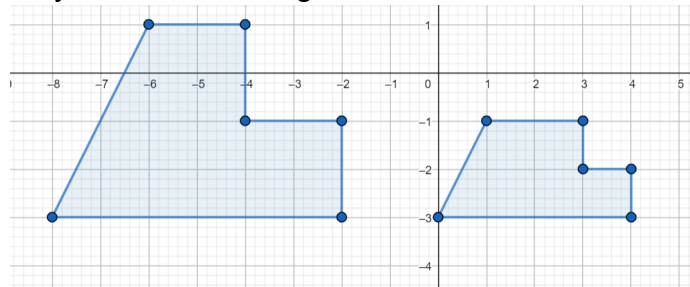
Question 2 Video [CLICK HERE](#)

The shapes below are similar. Find the value of x.



Question 3 Video [CLICK HERE](#)

Why are these two figures **not** similar?



Question 4 Video [CLICK HERE](#)

In the figure, $\triangle ABC \sim \triangle DEF$. Solve for x .

