

Given the following points:

$$Q = (-3, 4) \quad R = (1, 3) \quad S = (2, -2) \quad T = (-2, -3)$$

- a) Graph $QRST$ at the right.
- b) Find the coordinates of the images of these points under a dilation with scale factor 2 from the origin

$$Q' = \underline{\hspace{2cm}}$$

$$R' = \underline{\hspace{2cm}}$$

$$S' = \underline{\hspace{2cm}}$$

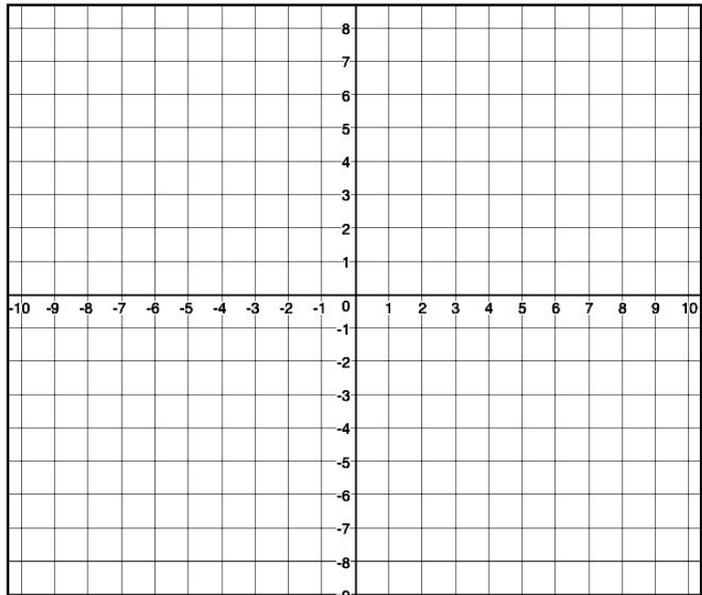
$$T' = \underline{\hspace{2cm}}$$

- c) Graph $Q'R'S'T'$ at the right.
- d) Use the distance formula to find:

$$QR = \underline{\hspace{2cm}}$$

$$Q'R' = \underline{\hspace{2cm}}$$

- e) How are QR and $Q'R'$ related?



Given the following points:

$$A = (8, -2) \quad B = (0, 0) \quad C = (-2, 8)$$

- a) Graph $\triangle ABC$ at the right.
- b) Find the coordinates of the images of these points under a dilation with scale factor 0.75 from the origin

$$A' = \underline{\hspace{2cm}}$$

$$B' = \underline{\hspace{2cm}}$$

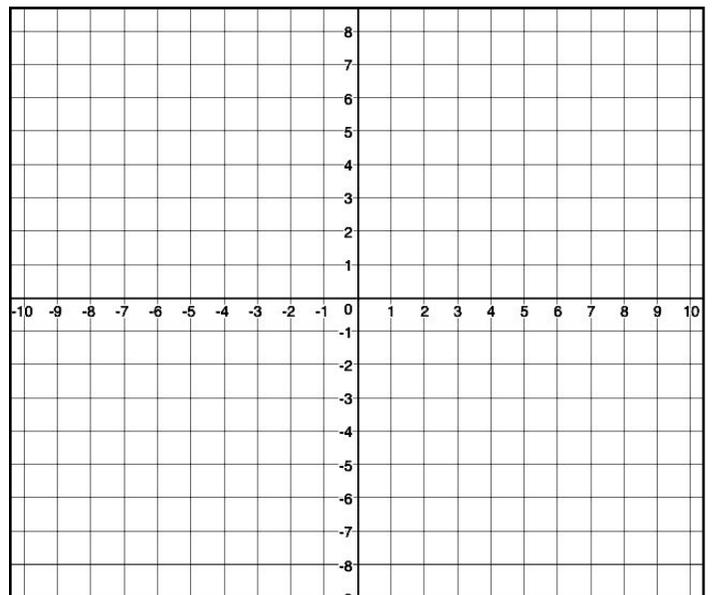
$$C' = \underline{\hspace{2cm}}$$

- c) Graph $\triangle A'B'C'$ at the right.
- d) Find the slopes of:

$$\overline{AC} = \underline{\hspace{2cm}}$$

$$\overline{A'C'} = \underline{\hspace{2cm}}$$

- e) How are \overline{AC} and $\overline{A'C'}$ related?



GRAPH the pre-image. Then **perform** the following transformations, **in the order specified**. **Label** each new image, using the appropriate symbols (shown). After each transformation: **list** the new coordinates, **compare** each image to its pre-image (size/shape/orientation), and write the rule for what happens to the coordinates. **USE COLORED PENCILS**.

a) PRE-IMAGE

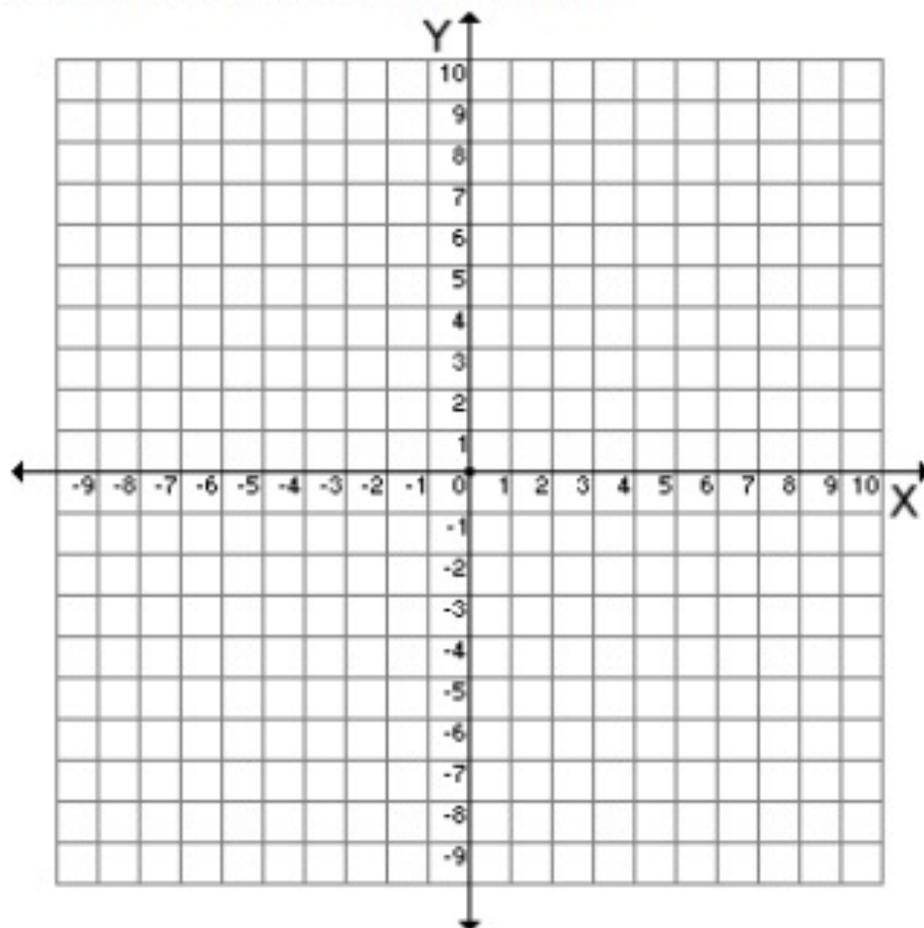
A (-6, 10)

B (-2, 6)

C (-4, 2)

D (-8, 2)

E (-10, 6)



b) **DILATE** with magnitude $\frac{1}{2}$.
from the origin

A' _____
B' _____
C' _____
D' _____
E' _____

c) COMPARE

c) **TRANSLATE** right 8 & up 3.

A'' _____
B'' _____
C'' _____
D'' _____
E'' _____

COMPARE

d) **REFLECT** over x-axis

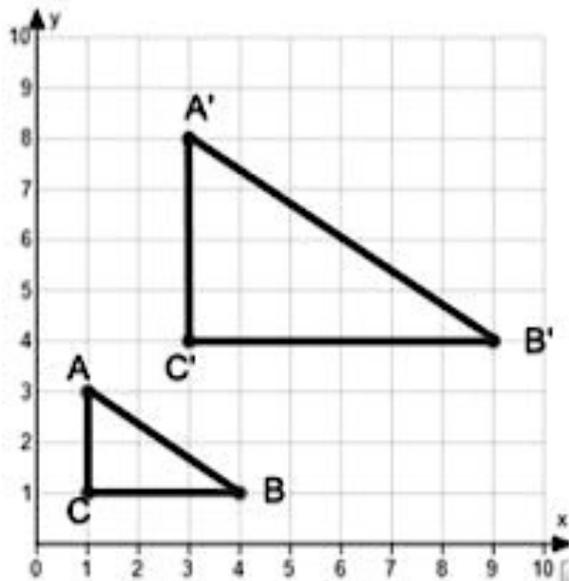
A''' _____
B''' _____
C''' _____
D''' _____
E''' _____

COMPARE

A dilation is a type of transformation that _____ or _____ objects.

The _____, k , describes how much the figure is enlarged or reduced.

In the graph below, $\triangle ABC$ has been dilated to produce $\triangle A'B'C'$.



1. Find the lengths of the following sides of the triangle:

$$AC: \underline{\hspace{2cm}} \quad CB: \underline{\hspace{2cm}}$$

$$A'C': \underline{\hspace{2cm}} \quad C'B': \underline{\hspace{2cm}}$$

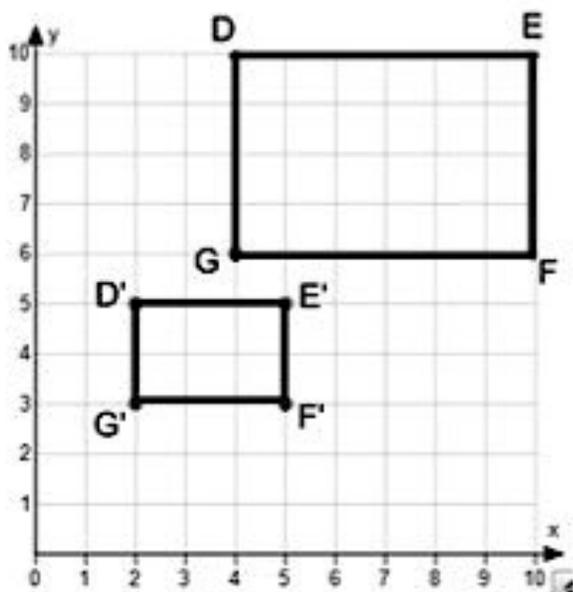
2. Find the ratios of the corresponding sides:

$$\frac{A'C'}{AC} = \quad \frac{C'B'}{CB} =$$

3. The scale factor is _____.

4. $\triangle ABC$ has been _____.

In the graph below, rectangle DEFG has been dilated to produce $D'E'F'G'$.



1. Find the lengths of the following sides of the rectangle:

$$DE: \underline{\hspace{2cm}} \quad EF: \underline{\hspace{2cm}}$$

$$D'E': \underline{\hspace{2cm}} \quad E'F': \underline{\hspace{2cm}}$$

2. Find the ratios of the corresponding sides:

$$\frac{D'E'}{DE} = \quad \frac{E'F'}{EF} =$$

3. The scale factor is _____.

4. DEFG has been _____.

The corresponding side lengths in a dilation are _____.

To find a scale factor, _____ a side length of the dilated figure by the corresponding side length of the original figure.

- If $k > 1$, the original figure has been _____.
- If $0 < k < 1$ (a _____), the original figure has been _____.
- If $k = 1$, the original figure is _____.

Tell whether one figure is a dilation of the other or not. Explain your reasoning.

- (a) Quadrilateral MNPQ has side lengths of 15 mm, 24 mm, 21 mm, and 18 mm. Quadrilateral M'N'P'Q' has side lengths of 5 mm, 8 mm, 7 mm, and 4 mm.

- (b) Triangle ABC has side lengths of 6 in, 7 in, and 12 in. Triangle A'B'C' has side lengths of 18 in, 21 in, and 36 in.

Use Dilations to help POPO increase in size 200%

Point of Dilation

