Get out your homework and have it ready to check. Test tomorrow!
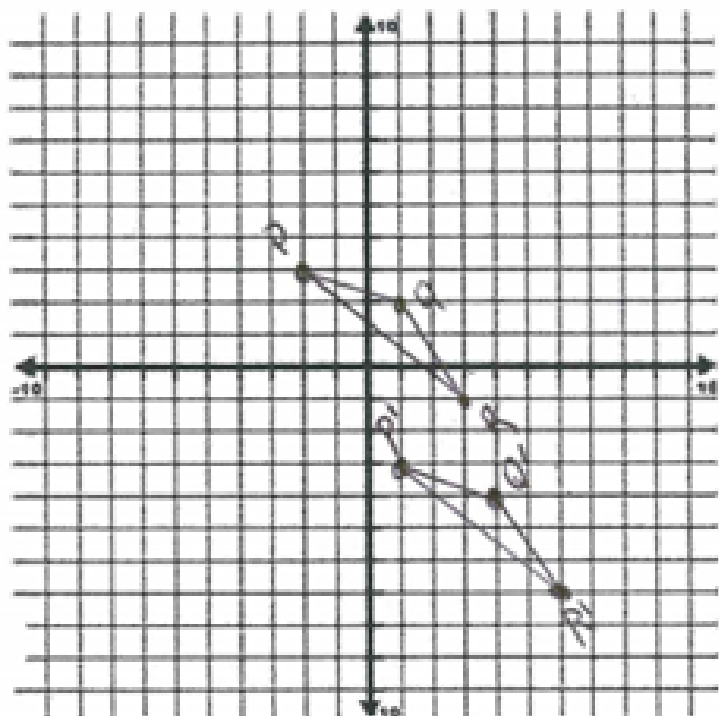
Classwork - Test Review Day 2

Translations

1) Complete each translation described. Label the image and find the new coordinates.

A) Graph $\triangle PQR$ with vertices $P(-2, 3)$, $Q(1, 2)$, and $R(3, -1)$. Translate the triangle using the translation notation below.
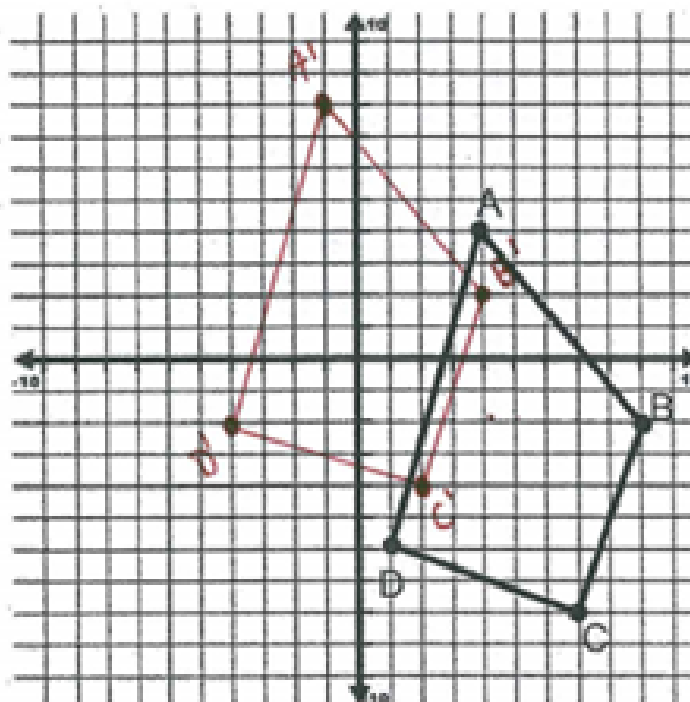
$$(x, y) \rightarrow (x + 3, y - 6)$$

B) Translate the quadrilateral $ABCD$ using the translation notation below.
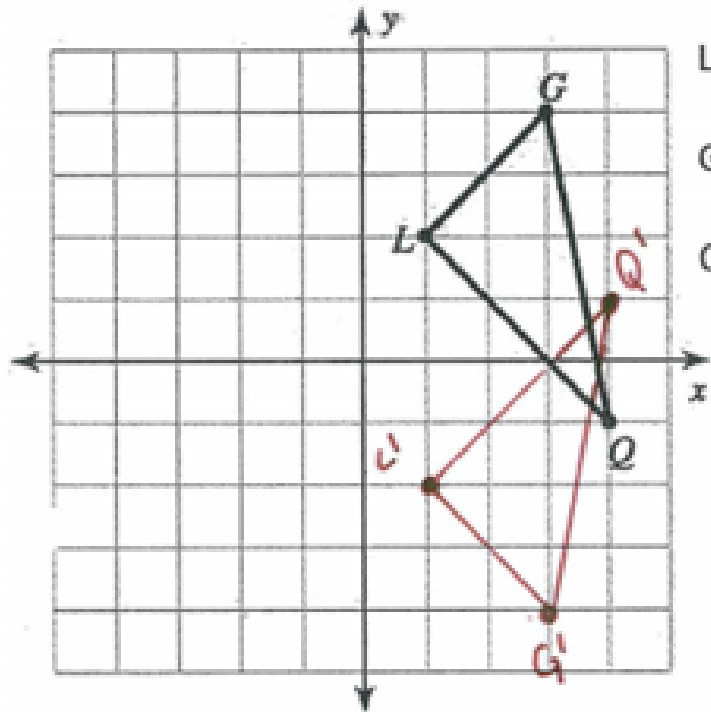
$$(x, y) \rightarrow (x - 5, y + 4)$$

P'→(1 , -3)   Q'→(4 , -4)

R'→(6 , -7)

A'→(-1 , 8)   B'→(4 , 2)

C'→(2 , -4)   D'→(-4 , -2)

Reflections

2) Complete each reflection described. Label the image and find the new coordinates.
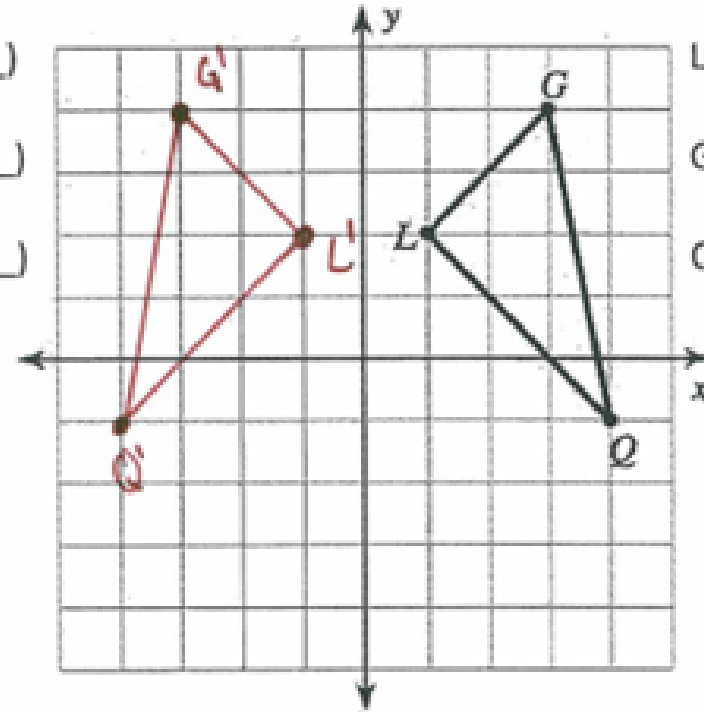
A) Reflect the △LGQ over the x-axis.

B) Reflect the △LGQ over the y-axis.

L' → (1 , -2)

G' → (3 , -4)

Q' → (4 , 1)

L' → (-1 , 2)

G' → (-3 , 4)

Q' → (-4 , -1)

Rotations

3) A triangle has vertices $A(4, 5)$, $B(2, 3)$, and $C(1, 7)$. Graph the triangle on each coordinate grid and perform the specified rotation about the origin. Write down the image points next to the graph before you graph the points.
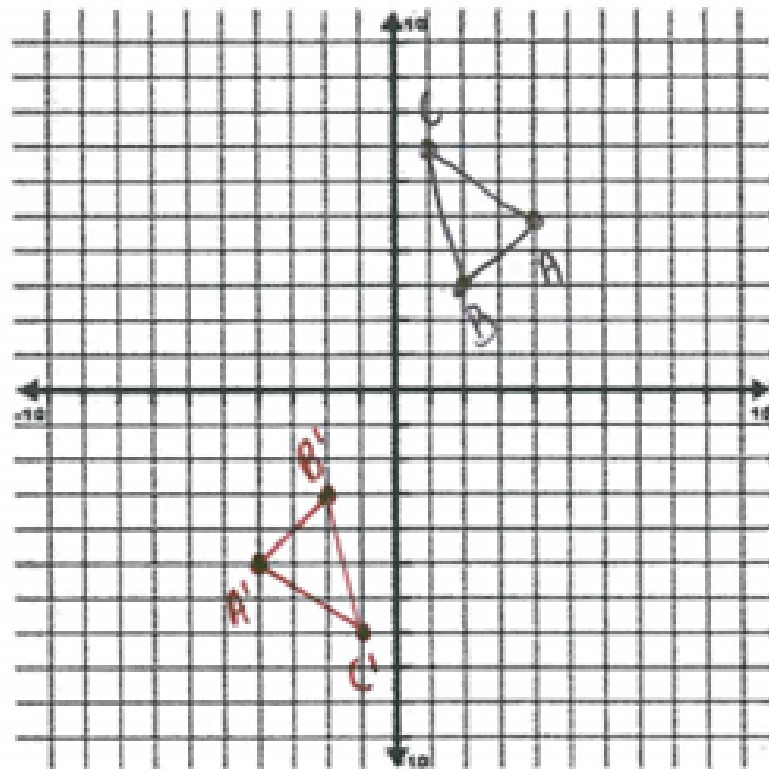
A) 90° clockwise rotation
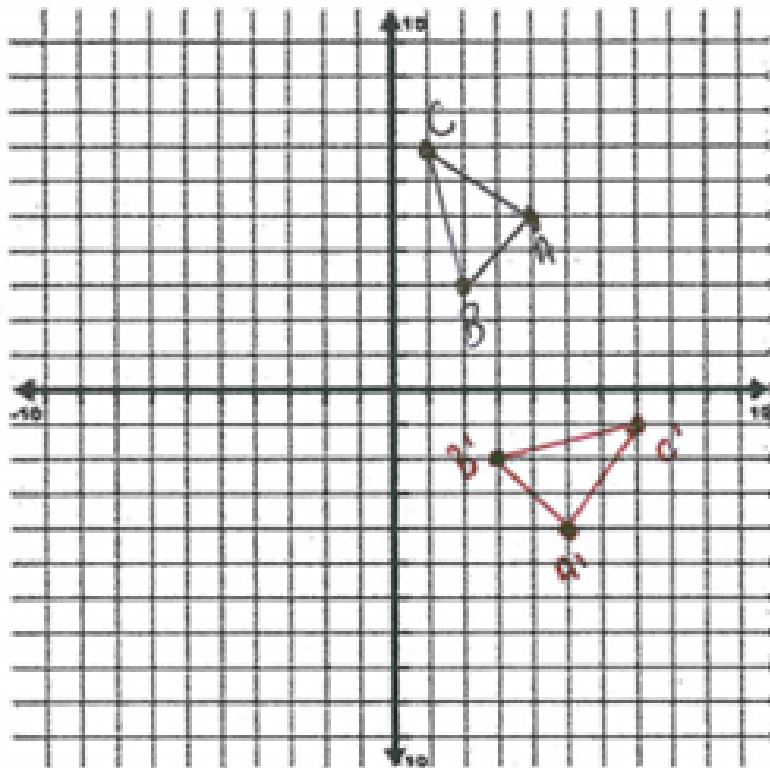
$A' \rightarrow (\underline{5}, \underline{-4})$ $B' \rightarrow (\underline{3}, \underline{-2})$

$C' \rightarrow (\underline{7}, \underline{-1})$

B) 180° clockwise rotation

$A' \rightarrow (\underline{-4}, \underline{-5})$ $B' \rightarrow (\underline{-2}, \underline{-3})$

$C' \rightarrow (\underline{-1}, \underline{-7})$

4) Complete each rotation described. Label the image and find the new coordinates.
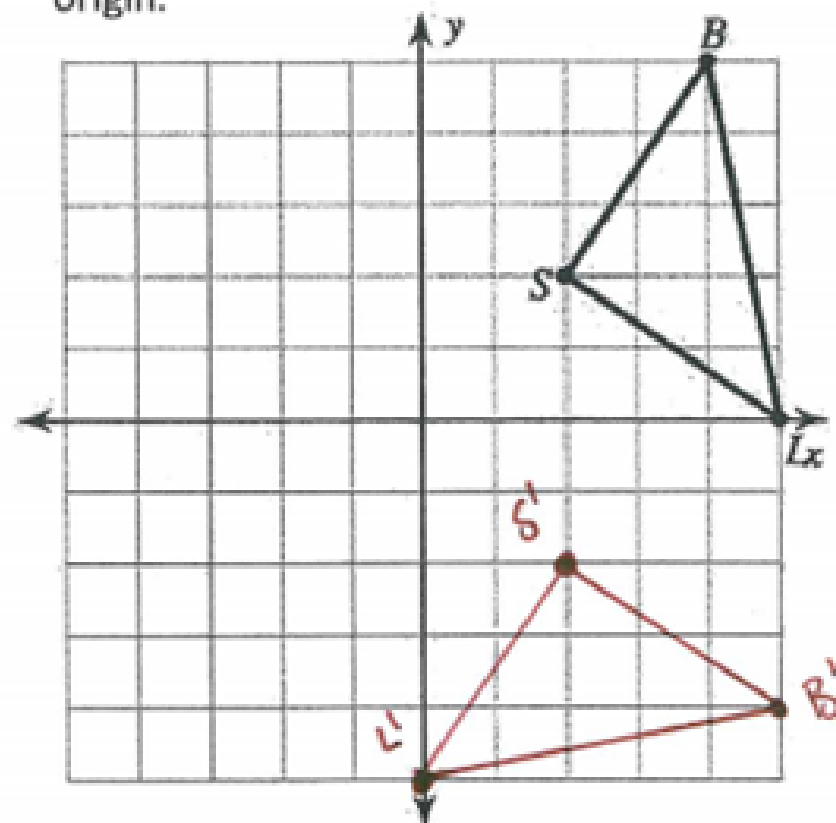
A) Rotate triangle JHQ 270° clockwise about the origin.
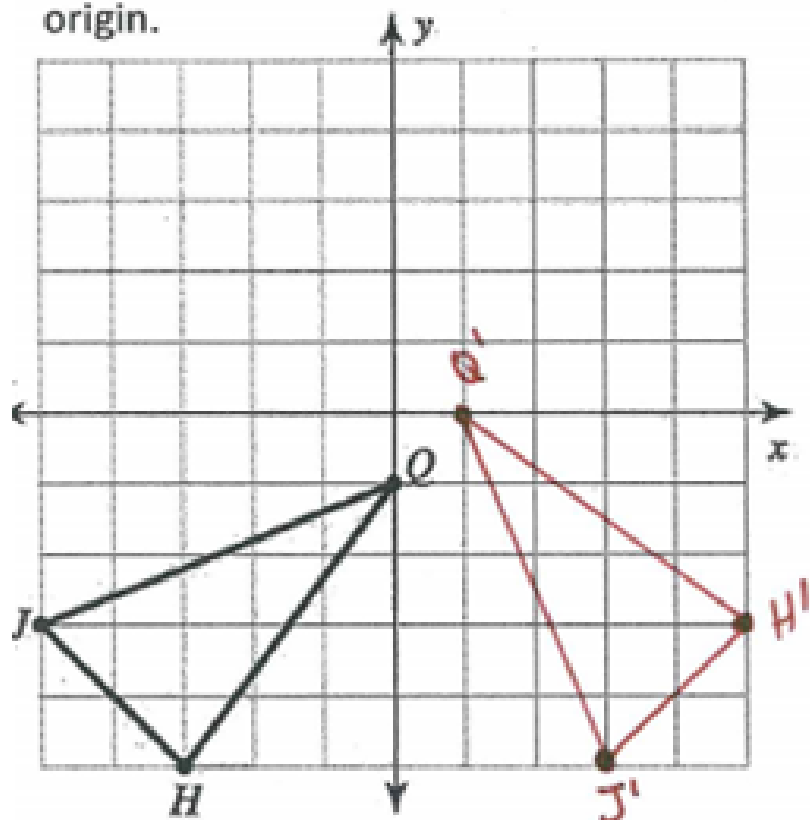
B) Rotate triangle SBL 90° clockwise about the origin.

J (-5 , -3) → J' (3 , -5)

H (-3 , -5) → H' (5 , -3)

Q (0 , -1) → Q' (1 , 0)

S (2 , 2) → S' (2 , -2)

L (5 , 0) → L' (0 , -5)

B (4 , 5) → B' (5 , -4)

Dilations

5) Complete each dilation described. Label the image and find the new coordinates. Then answer the questions about perimeter and area using the original image and scale factor.

.J Graph the rectangle with the vertices below and then dilate it using the scale factor given.
$A(2,2), B(-1,2), C(-1,-1), D(2,-1)$

Scale factor: 2

What is the perimeter and area of the original rectangle?

$3+3+3+3$ $3 \cdot 3$

$P = \underline{12\ units}$ $A = \underline{9\ units}^2$
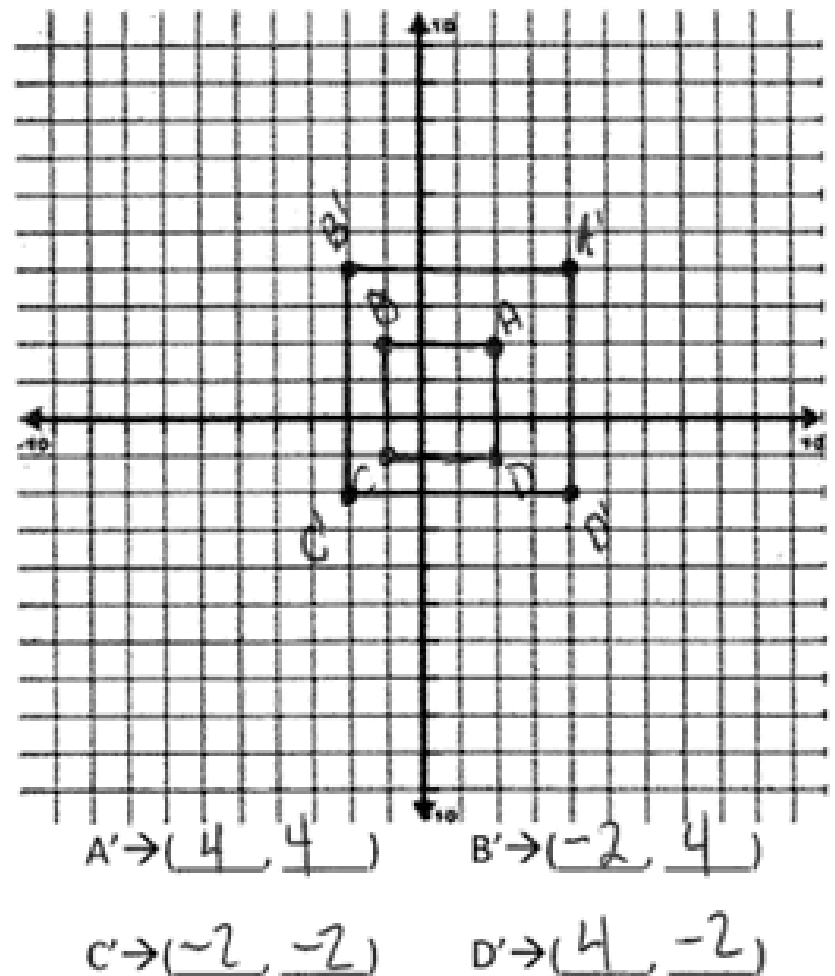
What is the perimeter and area of the new rectangle?
Use old figure and scale factor

$12 \cdot 2$ $9 \cdot 2^2$

$P = \underline{24\ units}$ $A = \underline{36\ units}^2$

$A' \rightarrow (\underline{4}, \underline{4})$ $B' \rightarrow (\underline{-2}, \underline{4})$

$C' \rightarrow (\underline{-2}, \underline{-2})$ $D' \rightarrow (\underline{4}, \underline{-2})$

ɔ) Dilate $\triangle XYZ$ by the scale factor given.

Scale factor: $\frac{1}{3}$ $X(9,-3)$ $Y(3,6)$ $Z(-3,-3)$

What is the perimeter and area of the original rectangle?
(Hint→ Side YZ and XY are the same length and you have
to use the Pythagorean Theorem to find them.)

$6^2 + 9^2 = c^2$

$36 + 81 = c^2$

$\sqrt{117} = \sqrt{c^2}$

$A = \frac{1}{2}(12)(9)$

$10.8 = c$

$8 + 10.8 + 12 = P$

$P = \underline{33.6 \text{ units}}$ $A = \underline{54 \text{ units}^2}$
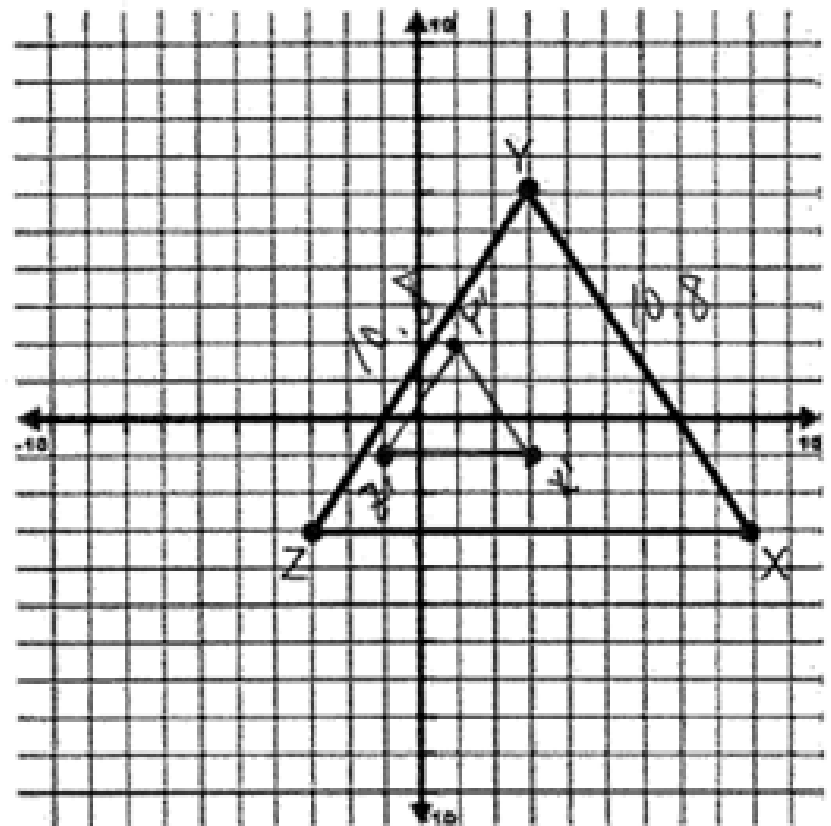
What is the perimeter and area of the new rectangle?
Use old figure and scale factor

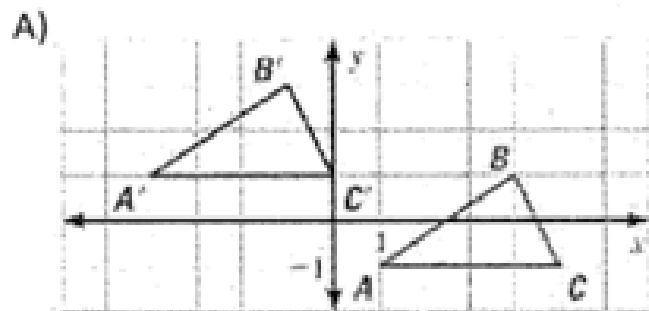$P = 33.6\left(\frac{1}{3}\right)$ $A = 54 \cdot \left(\frac{1}{3}\right)^2$

$X' \to (\underline{3}, \underline{-1})$ $Y' \to (\underline{1}, \underline{2})$

$Z' \to (\underline{-1}, \underline{-1})$

$P = \underline{11.2 \text{ units}}$ $A = \underline{6 \text{ units}^2}$

A)

Transformation: __Translation__
Rule: $(x, y) \rightarrow (x-5, y+2)$

Congruent? __yes__

B)

Transformation: __Reflection__
Rule: Reflection over the x-axis

Congruent? __yes__

C) The top figure is the pre-image.

Transformation: __Rotation__
Rule: Rotated 90° clockwise
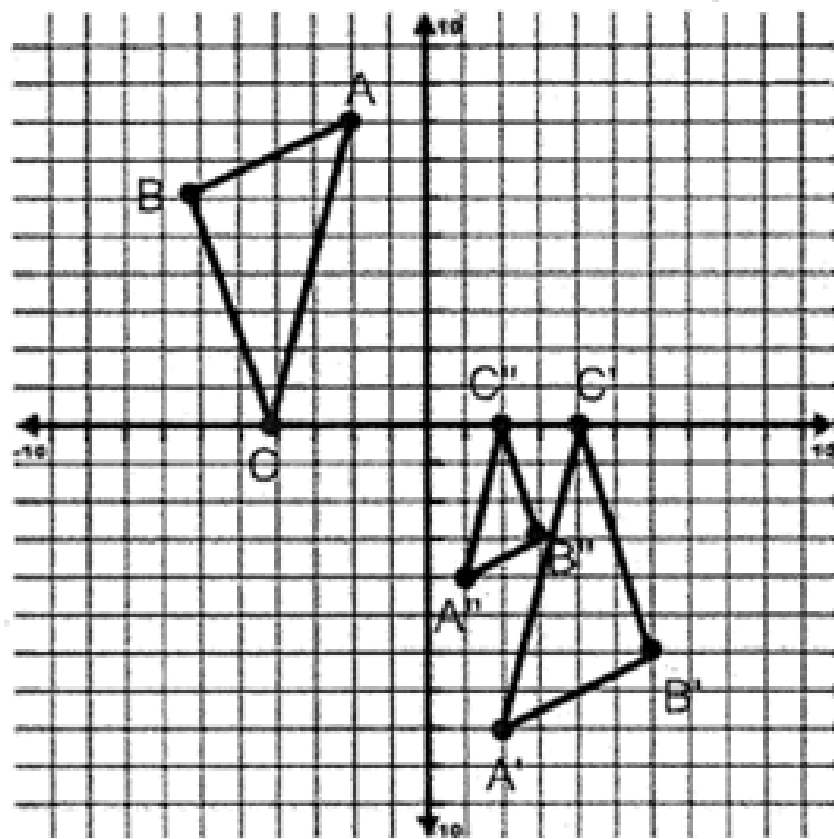
Congruent? __Yes__

D)
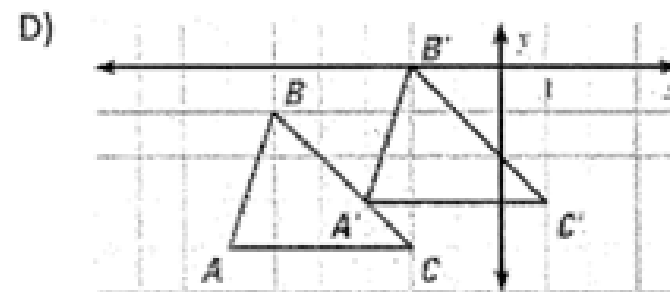
Transformation: __Translation__
Rule: $(x, y) \rightarrow (x+3, y+1)$

Congruent? __yes__

Identify what two transformations are occurring and then fully describe them.

7)

A) 1st Transformation: Rotation

Rule → Rotated 180° clockwise

B) 2nd Transformation: Dilation

Rule → Dilated with scale factor of 1/2

C) Circle all the images below that are congruent.
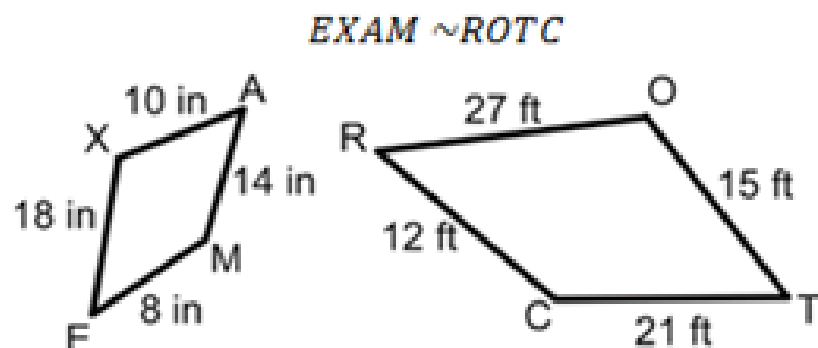
△ABC   △A'B'C'   △A''B''C''

$C'(4,0) \rightarrow C''(2,0)$

1) Quadrilateral EXAM is similar to Quadrilateral ROTC

A) Find the scale factor going **from EXAM to ROTC**.
Show that every pair of corresponding sides has the same
simplified scale factor. Not just one!

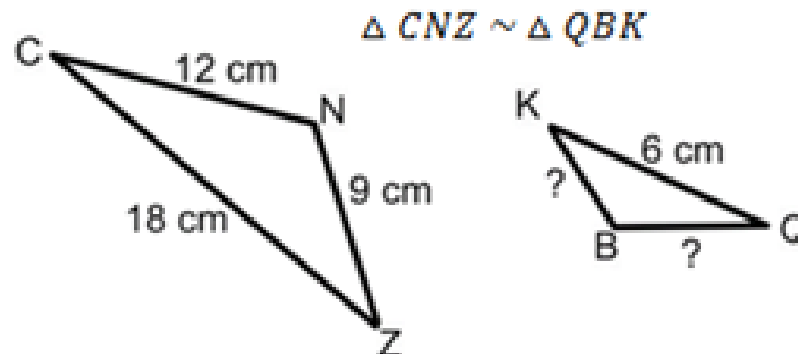*EXAM ~ROTC*

$$\frac{New}{Old} \rightarrow \frac{ROTC}{EXAM}$$

B) What would the scale factor be going **from EXAM to ROTC.** *Hint→* The new and old have changed.

2) Use the similar figures to the right to answer the following problem.
A) Find the scale factor going **from △ CNZ to △ QBK.**
SHOW WORK

$\triangle CNZ \sim \triangle QBK$

$$\frac{QK}{CZ} = \frac{6}{18} = \frac{1}{3}$$

12 cm

C

N

K

6 cm

?

9 cm

18 cm

B   ?   Q

Z

B) **Use the scale factor** to find all the missing sides on the new figure. SHOW WORK

$$12 \cdot \frac{1}{3} = QB$$

$QB =$ _____
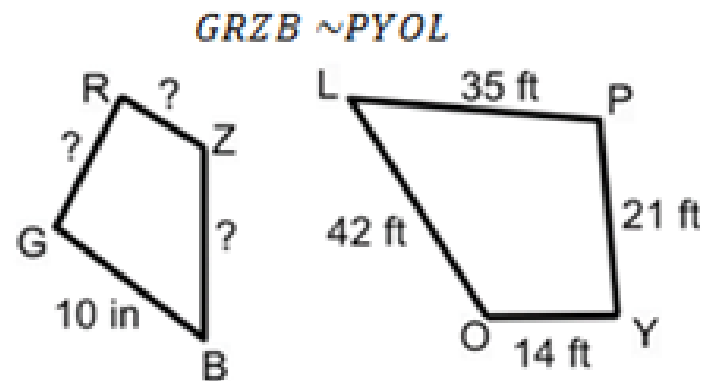
$BK =$ _____

3) Use the similar figures to the right to answer the following problem.
A) Find the scale factor going **from PYOL to GRZB.**
SHOW WORK

$GRZB \sim PYOL$

R   ?   L   35 ft   P

?   Z

G   ?   42 ft   21 ft

10 in

B   O   14 ft   Y

B) **Use the scale factor** to find all the missing sides on the new figure. SHOW WORK $GR =$ _____

$RZ =$ _____

$ZB =$ _____

4) Determine if the figures are similar or not.
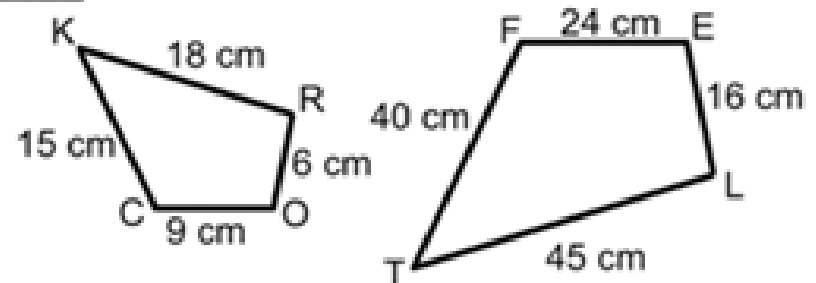A) Find the ratio of each corresponding side **from △ LEG to △ ARM.**
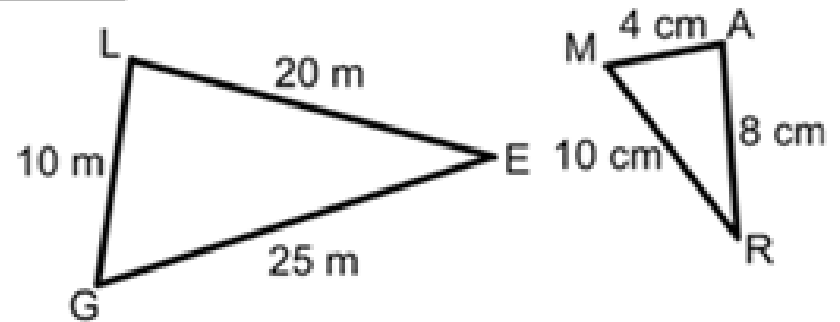
B) Are the two figures similar? **If yes**, what is the scale factor? **If no**, explain why they are not similar.

Scale Factor = _____

5) Determine if the figures are similar or not.
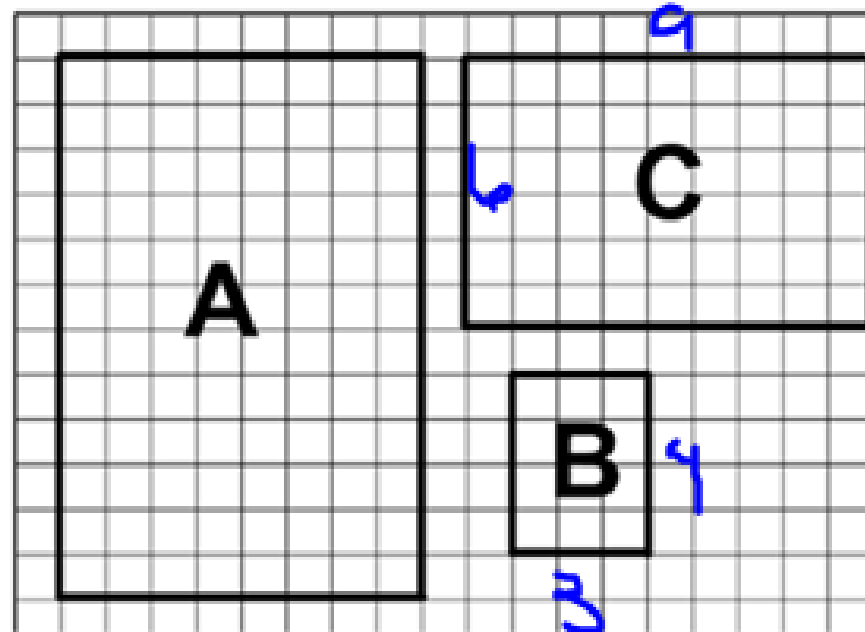A) Find the ratio of each corresponding side **from ROCK to LEFT.**

B) Are the two figures similar? **If yes**, what is the scale factor? **If no**, explain why they are not similar.

Scale Factor = _____

6) Two of the following three figures are similar to one another. Determine which two figures are similar and what the scale factor is. **SHOW YOUR WORK**

A to B | B to C | A to C

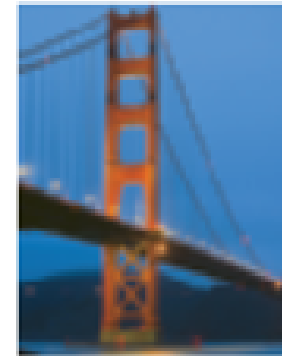$$\frac{9}{4}$$

$$\frac{6}{3}$$

Similarity Statement

A)   Figure _____ ~ Figure _____

B) Scale Factor = _____

7) Destiny wants to resize a 4 inch wide by 5 inch long photograph for the school newspaper. The resized picture must fit in a space that is 2 inches wide. What is the length of the resized photograph?
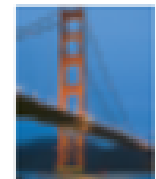
$$\frac{\square}{\square} = \frac{\square}{\square}$$
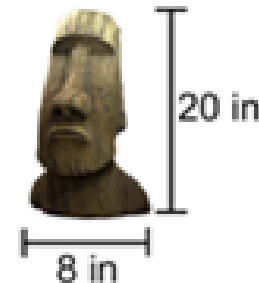
$h =$ _____

5 in.

2 in.

4 in.

x

8) Jayce is made a to scale model of the one of the Easter Island heads that is 8 inches wide and 20 inches tall. The actual width of the Easter Island head is 13 feet. What is the height of the actual Easter Island head?

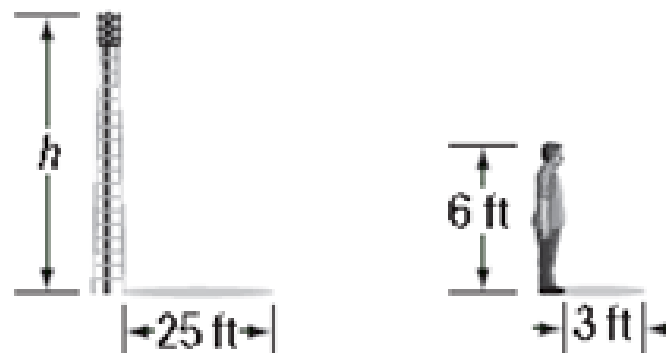$$\frac{\square}{\square} = \frac{\square}{\square}$$
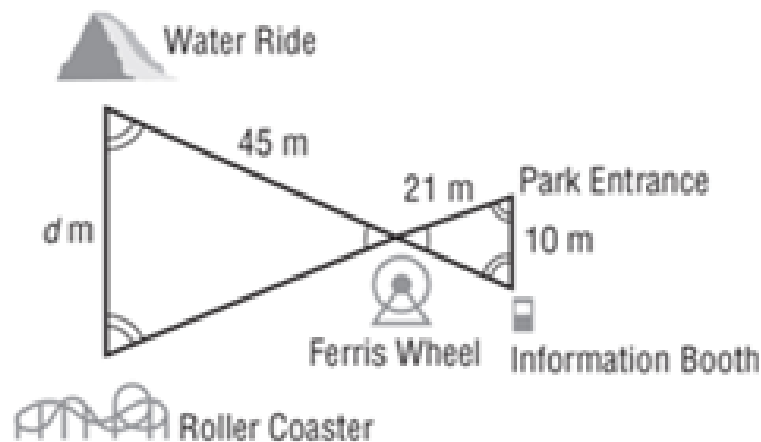
$h =$ _____

20 in

8 in

h

13 ft

9) A man that is 6 feet tall casts a shadow of 3 feet. What is the height of a nearby cellular tower that casts a shadow that is 25 feet long?

$$\frac{\square}{\square} = \frac{\square}{\square}$$

$h =$ _____

h

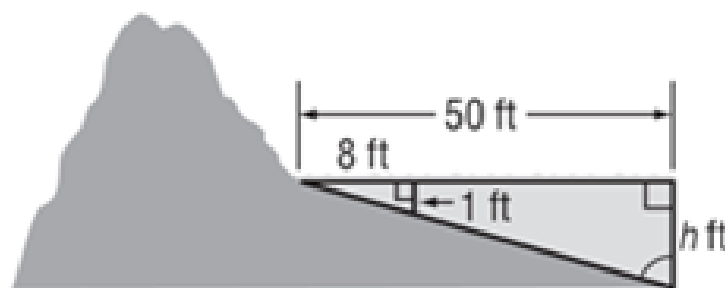$\leftarrow 25\ ft \rightarrow$

6 ft

$\rightarrow |3\ ft| \leftarrow$

10) How far is the Water Ride from the Roller Coaster? Round to the nearest tenth.

Water Ride

45 m

21 m   Park Entrance

d m

10 m

Ferris Wheel   Information Booth

Roller Coaster

$d =$ _____

11) How deep is the water 50 feet from the shore?

50 ft

8 ft

$\leftarrow$ 1 ft

h ft
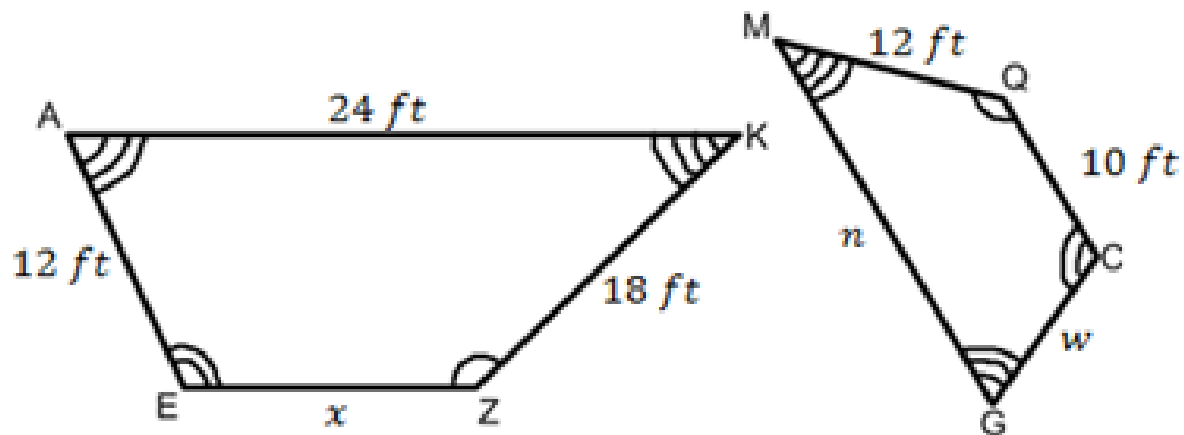
$h =$ _____

12) Determine if the two triangles are similar. If similar, write a similarity statement.

A)

B)
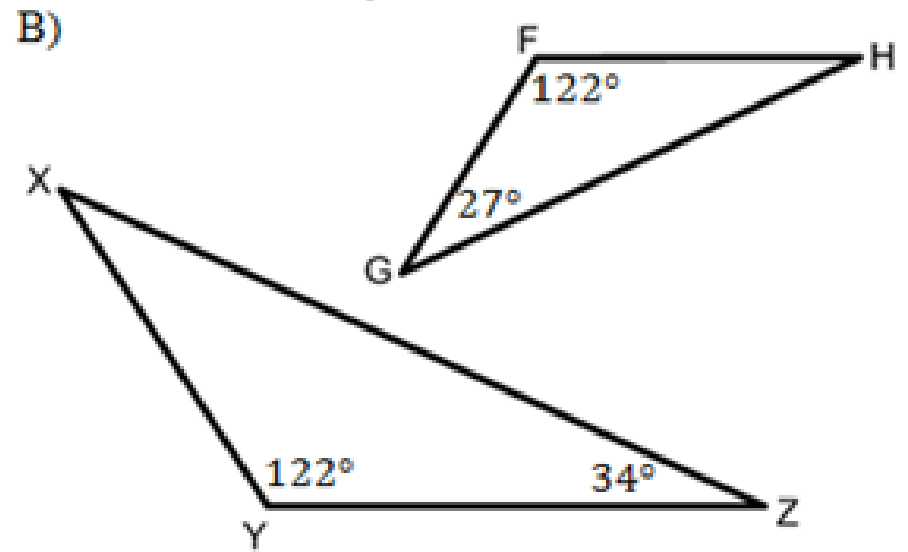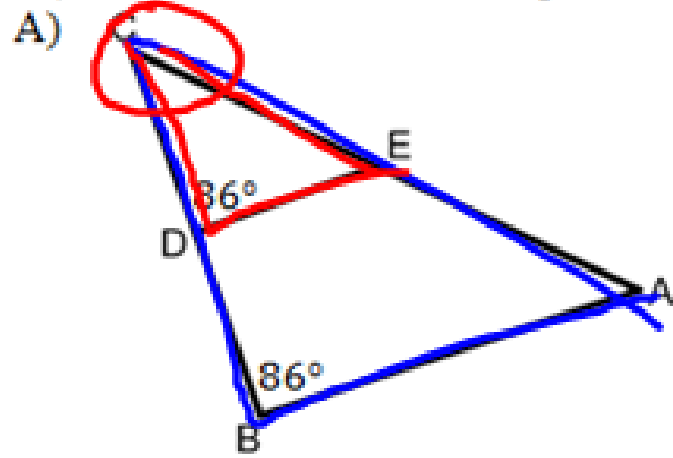
13) Each pair of polygons is similar. Find each missing side measure. SHOW WORK
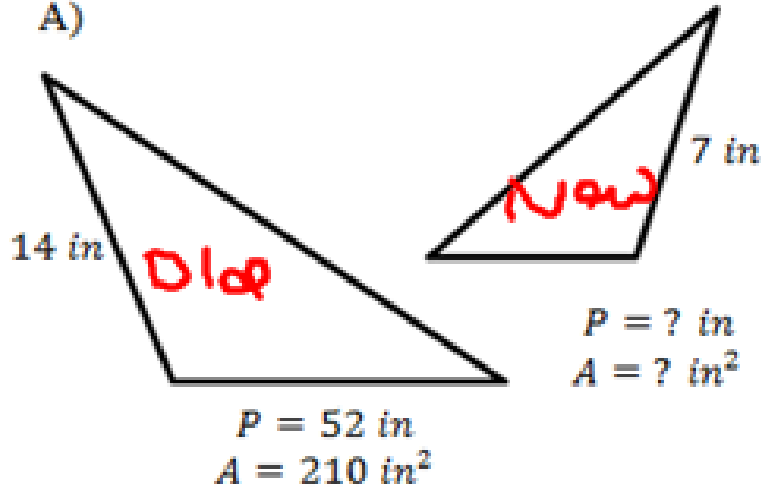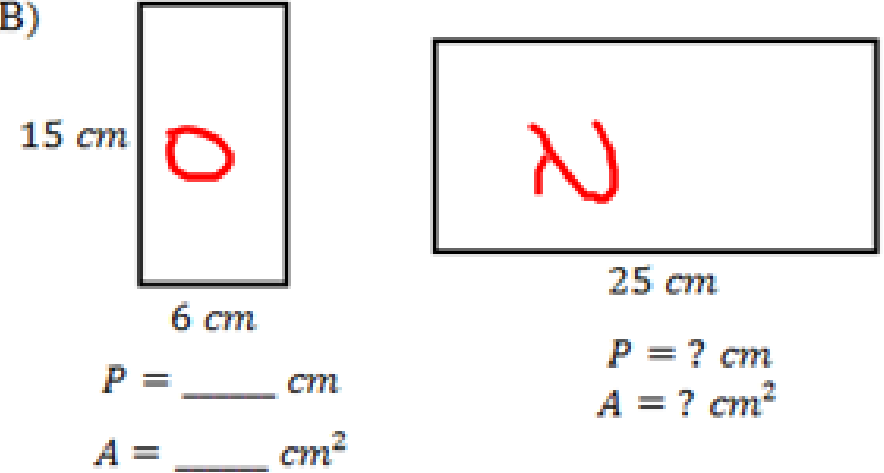

$x =$ _____

$n =$ _____

$w =$ _____

14) For each pair of similar figures, find the scale factor of the corresponding sides and use it to find the perimeter and area of the second figure. SHOW WORK AND LABEL

A)

7 in

14 in

$P = ?$ in
$A = ?$ in^2

$P = 52$ in
$A = 210$ in^2

$$\frac{7}{14} = \frac{1}{2}$$

$\frac{1}{2}$

Scale Factor = _____

$P = $ 26 in $A = $ 52·sin^2

$52 \cdot \frac{1}{2} = P \quad 210 \cdot \left(\frac{1}{2}\right)^2 = A$

B)

15 cm

6 cm

$P = $ _____ cm
$A = $ _____ cm^2

25 cm

$P = ?$ cm
$A = ?$ cm^2

Scale Factor = _____

$P = $ _____ $A = $ _____