Name Key Per # _____ **REVIEW**

Math 8 Date _____

ALL Transformation Review

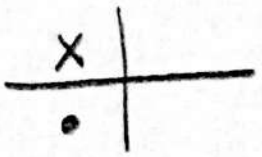
Multiple Choice

Identify the choice that best completes the statement or answers the question.

d **1.** Point $A(-2, -10)$ is reflected over the x-axis. The new coordinates of A'

(a) (2, -10) **(c)** (-2, -10)

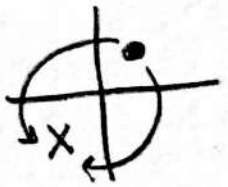
(b) (2, 10) **(d)** (-2, 10)



C **2.** Point $D(2, 4)$ is rotated 180° about the origin, what would be the new the coordinate of D'?

(a) (-4, 2) **(c)** (-2, -4)

(b) (4, -2) **(d)** (-4, -2)



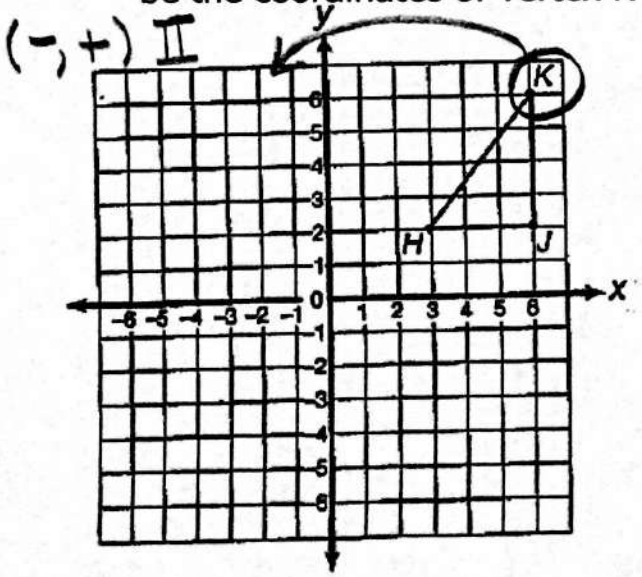
a **3.** Point $X(-3, -2)$ is translated using the rule $(x, y) \rightarrow (x+3, y+4)$ What is the coordinate of X'?

(a) (0, 2) **(c)** (2, 0)

(b) (0, -2) **(d)** (-2, 0)

$\begin{array}{r} -3 \\ +3 \\ \hline 0 \end{array}$ $\begin{array}{r} -2 \\ +4 \\ \hline 2 \end{array}$

C **4.** If this triangle was reflected over the y-axis to form $\Delta H'J'K'$, what would be the coordinates of vertex K'?



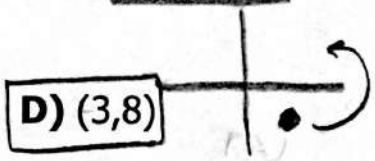
(a) (6, -6) **(c)** (-6, 6)

(b) (6,6) **(d)** (-6, -6)

d **5.** Figure ABCD has vertices **A** (6,-4), **B** (2, -4), **C** (8, -3) and **D** (2, -3).

Which would be the coordinates of vertex **C′** after the rectangle is **rotated 90° *counterclockwise*** about the origin?

A) (-8, -3) **B)** (8,3) **C)** (-3,-8) **D)** (3,8)



a **6.** Which of the following transformations does not result in a congruent figure?

(a) dilation **(c)** reflection

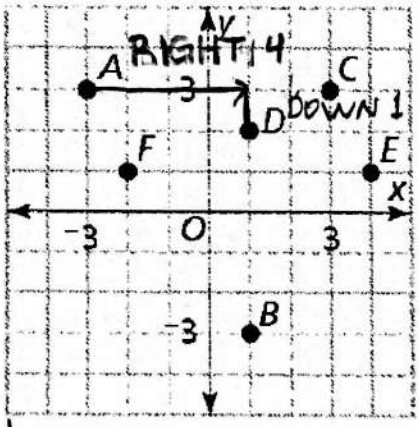
(b) rotation **(d)** translation

b **7.** $\overline{CD}$ was dilated around the origin by a **scale factor of 2**. The endpoints of the image are **C'(4,0)** and **D'(6,2)**. What are the coordinates of the endpoints of the ***original*** line segment? ← after dilation by 2

(a) C(2,0), D(3,0) **(c) C(2,0), D(1,1)** $C\left(\frac{4}{2}, \frac{0}{2}\right) \rightarrow (2,0)$

(b) C(2,0), D(3,1) **(d) C(4,0), D(6,2)** $D\left(\frac{6}{2}, \frac{2}{2}\right) \rightarrow (3,1)$

a **8.** Using the graph below, what is the rule for a translation **from point *A*** to **point *D***?



right down

(a) (x,y) → (x + 4, y − 1) **(b) (x,y) → (x − 1, y + 4)**

(c) (x,y) → (x − 4, y + 1) **(d) (x,y) → (x + 1, y − 4)**

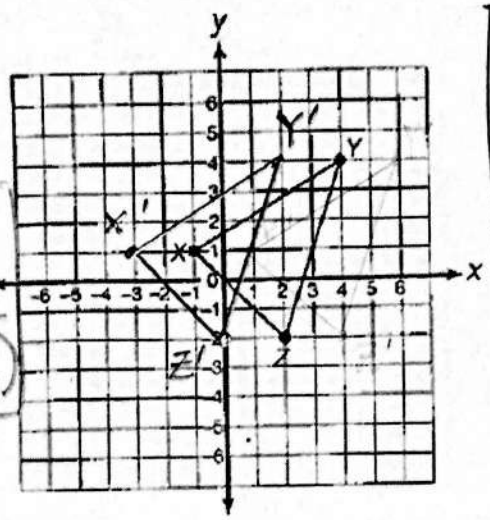
C **9.** What set of coordinates would move the vertices for the translation of ΔXYZ two units to the left?

* add -2 to the x-coord.

X (-1, 1)
-2 +0
X' (-3, 1)

Y (4, 4)
-2 +0
Y' (2, 4)

Z (2, -2)
-2 +0
Z' (0, -2)



X (-1, 1) → X' (-3, 1)
Y (4, 4) → Y' (2, 4)
Z (2, -2) → Z' (0, -2)
* From using the graph

(a) X'(1,1), Y'(6,4), Z(4, -2)

(c) X'(-3,1), Y'(2,4), Z(0, -2)

(b) X'(-1,1), Y'(4,6), Z(2, 0)

(d) X'(-3,1), Y'(1,4), Z(-2, 0)

a **10.** Write a description of the rule **(x, y)** → **(x ⊕ 10, y ⊕ 8)**. RIGHT UP

(a) translation 10 units to the right and 8 units up

(b) translation 10 units to the left and 8 units down

(c) translation 10 units to the right and 8 units down

(d) translation 10 units to the left and 8 units up

b **11.** The **dilation** of a figure can be described as (x,y) → (**2**x, **2**y). What is the size of the dilated figure in respect to the original figure?

Scale factor of 2

A) the side lengths are 2 ***times*** longer
B) the side lengths are 2 ***times*** as long
C) the side lengths are ***increased by*** 2 units
D) the side lengths are ***decreased by*** 2 units

b **12.** Which of the following transformations ***may*** result in a figure that is ***not congruent***? * size may change * shape stays the same

A) reflection **B)** dilation **C)** rotation **D)** translation

similar figures

C **13.** If point **F** (7, 1) is translated **6** units to the **right** and **4** units **down**, which coordinate represents **F'**?

A) (3, 7) **B)** (1, -3) **C)** (13, -3) **D)** (1, 5)

7, 1
+6, -4
13, -3

C **14.** Which is true about a ***translation***?

A) The **angles** inside the figure **change**
B) The side **lengths** of the figure **change**
C) The image and the original figure are **congruent**
D) Orientation of the figure **changes**

a **15. Orientation** is ***not*** preserved for which of the following?

A) reflection **B)** dilation **C)** rotation **D)** translation

16.

Complete using the point (2,-6)	
$r_{x\text{-axis}}$ (2,-6) → (2, 6)	$+^x_0$
$r_{y\text{-axis}}$ (2,-6) → (-2, -6)	$_x+_0$
$T_{0,-4}$ (2,-6) → (2, -10)	2 -4 / +0 -6
$T_{-4,3}$ (2,-6) → (-2, -3)	2 -6 / -4 3
$R_{90°}$ (2,-6) → (-6, -2) Clockwise	
$R_{180°}$ (2,-6) → (-2, 6)	
D_4 (2,-6) → (8, -24) 2·4, -6·4	
$D_{\frac{1}{3}}$ (2, -6) → ($\frac{2}{3}$, -2) $\frac{2}{1}\cdot\frac{1}{3}, \frac{-6}{1}\cdot\frac{1}{3}$	

17. Describe the translation for this notation:

$(x, y) \longrightarrow (x + 8, y - 15)$

8 to the right and down 15

18. The line $\overline{AB}$ is **rotated** about the origin.
How would you describe the relationship between the ***lengths*** of $\overline{AB}$ and $\overline{A'B'}$?

The two lines would be congruent.

19. A point **(a, b)** is reflected across the ***y-axis***. What are the new coordinates?

* y-coordinate stays the same
* x-coordinate changes sign

The new ordered pair is $(-a, b)$

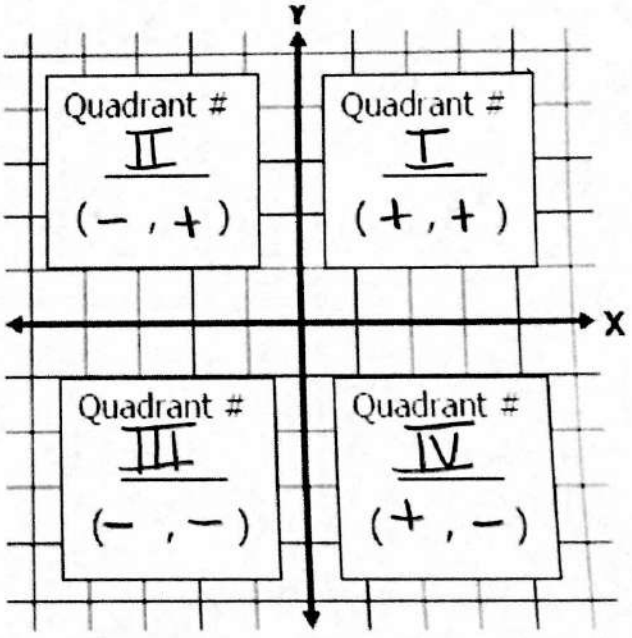
20. When an image is ***translated***, what term can be used to describe the **new** image **size & shape** as **compared to the pre-image**?

The preimage and the new image are congruent.

21.
Given the coordinate plane:

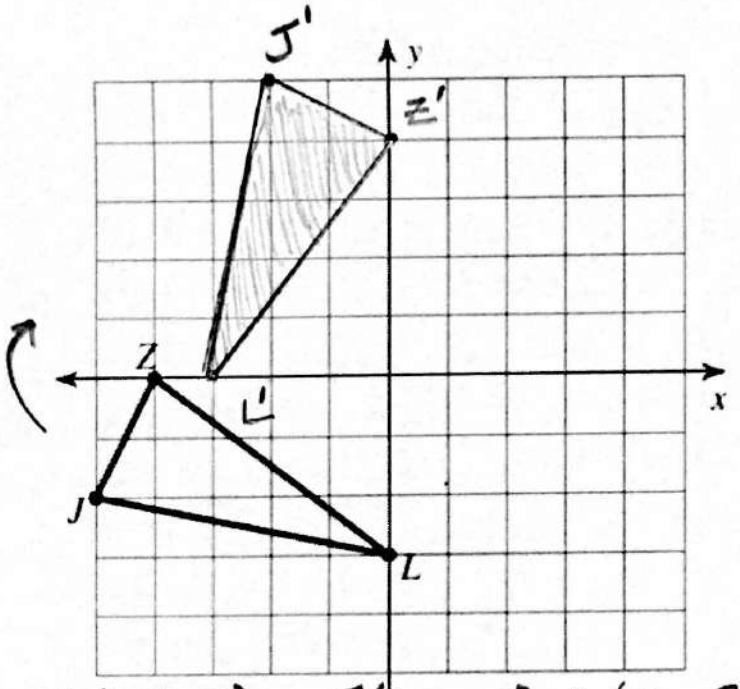
Complete the missing information on the coordinate grid by:

- **numbering the quadrants**
- **stating the signs of the x & y co-ordinates**



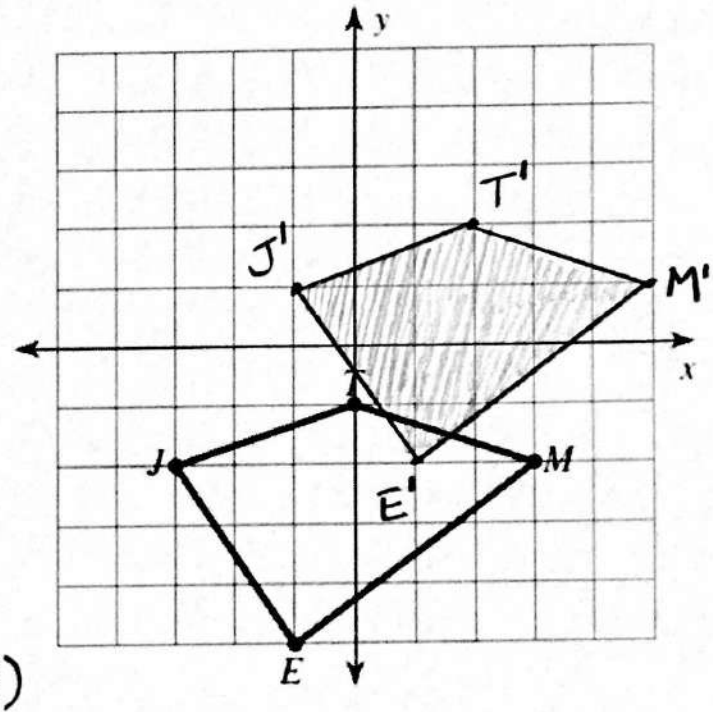
For each of the following graph the image of the transformation as given. Label each new vertex with the appropriate prime notations.

22. 90° clockwise rotation about the origin

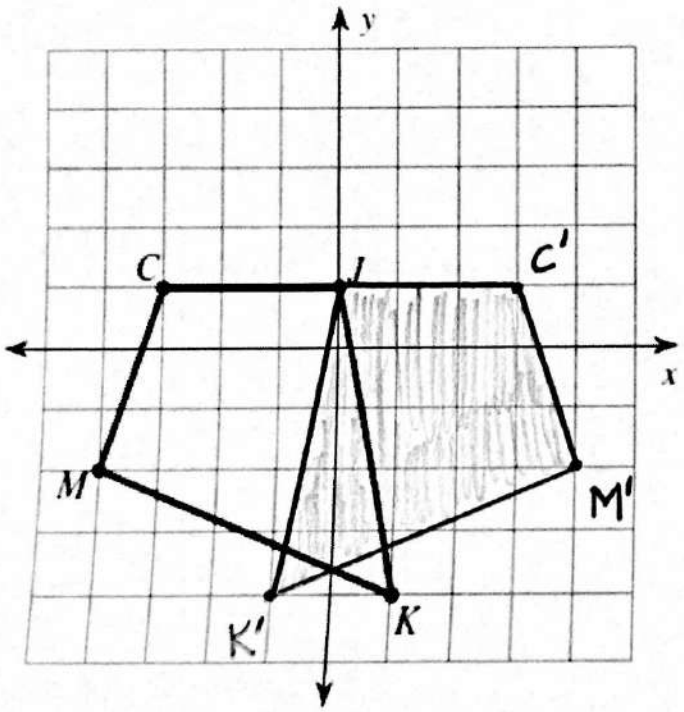


Z(-4,0) J(-5,-2) L(0,-3)
Z'(0,4) J'(-2,5) L'(-3,0)

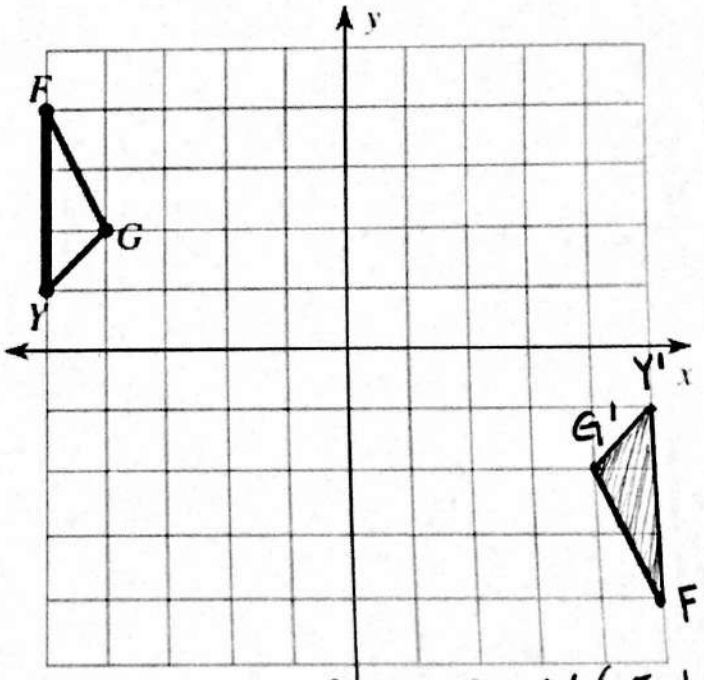
23. Translate 2 right and 3 up



24. Reflection across the y-axis



25. 180° rotation



F(-5,4) G(-4,2) Y(-5,1)
F'(5,-4) G'(4,-2) Y'(5,-1)