

Name:

Geometry

Unit 7 Study Guide

1. What type of transformation moves  $P(3, -6)$  to  $P'(3, 6)$ ?

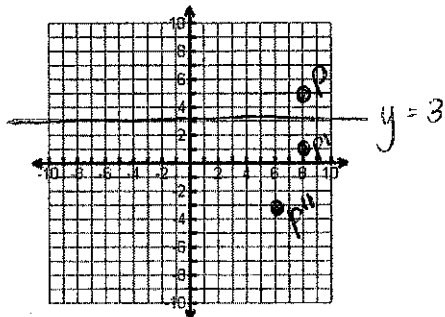
reflection over x axis

2. If the result of  $(x, y) \rightarrow (x - 2, y + 3)$  is  $A'(-5, 2)$ , what is the **pre-image**, of A?

$A(-3, -1)$

3. If  $P(8, 5)$  is reflected over the line  $y = 3$  and then translated according to the rule  $(x, y) \rightarrow (x - 2, y - 4)$ , what quadrant will  $P''$  be in? (Hint: **Quadrant I, Quadrant II, Quadrant III or Quadrant IV**)

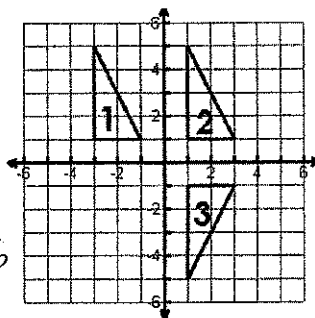
Quad  
IV



4. Triangle 1 is transformed as shown in the diagram, resulting in Triangle 2. Triangle 2 is transformed to create Triangle 3. Describe the combination of transformations ( $1 \rightarrow 2 \rightarrow 3$ ).

Translation  
 $(x+4, y)$

Reflection  
over x axis  
 $(x, -y)$



5. Line segment JK with coordinates  $J(-1, 1)$ ,  $K(-3, -1)$  is rotated  $90^\circ$  counterclockwise to produce image  $J'K'$ . What transformations of JK would produce the same image  $J'K'$ ?

rotation  $270^\circ$  CW

6. A figure is transformed according to the rule  $(x, y) \rightarrow (x - 1, y + 4)$ . Describe the transformation that has taken place.

translation left 1, up 4

The graph to the right is used to answer questions 7 and 8.

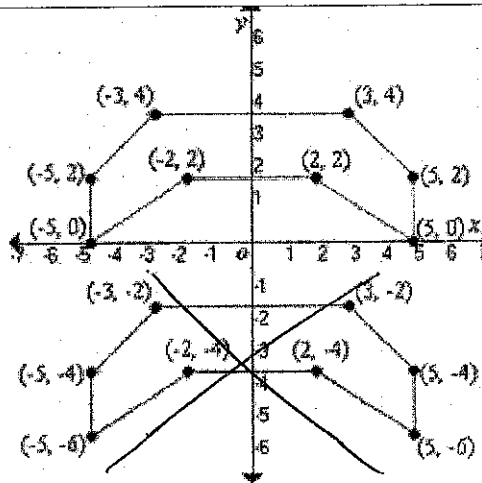
7. Top picture is pre-image. Rotate  $180^\circ$

$(3, -4)$   $(2, -2)$   $(-5, -2)$   
 $(5, -2)$   $(-2, -2)$   $(-5, 0)$   
 $(5, 0)$   $(-3, -4)$

8. Top picture is pre-image.

Translate  $(x, y) \rightarrow (x - 2, y + 3)$ .

$(-5, 7)$   $(-4, 5)$   $(3, 5)$   
 $(-7, 5)$   $(0, 5)$   $(3, 3)$   
 $(-7, 3)$   $(1, 7)$

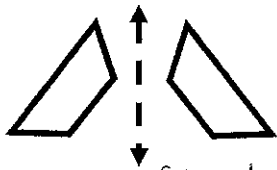


9. Given  $A(5, 6)$ , if A is transformed by the rule  $(x, y) \rightarrow (x + 2, y - 8)$  and then reflected over the x-axis, what is  $A''$ ?

$A(5, 6)$   $A'(7, -2)$   $A''(7, 2)$

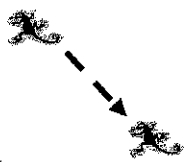
Identify each motion as a translation, reflection or rotation.

10.



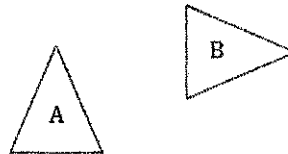
reflection

11.



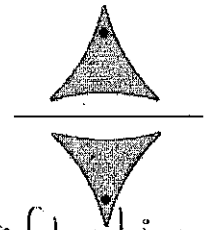
translation

12.



rotation

13.



reflection

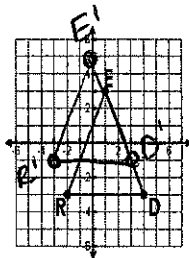
Perform the given transformations and graph the image on the given graph below.

14. Translate the figure by  $(x - 1, y + 2)$

$$R(-2, -3) \rightarrow R'(-3, -1)$$

$$E(1, 3) \rightarrow E'(0, 5)$$

$$D(4, -3) \rightarrow D'(3, -1)$$

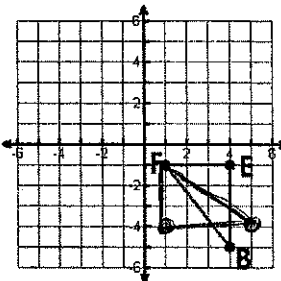


15. Reflect the figure over the line  $y = -x$ .

$$F(1, -1) \rightarrow F'(1, -1)$$

$$E(4, -1) \rightarrow E'(1, -4)$$

$$B(4, -5) \rightarrow B'(5, -4)$$

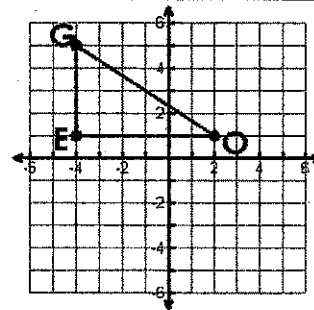


16. Rotate  $90^\circ$  clockwise around the origin, then reflect over  $y = -x$ .

$$G(-4, 5) \rightarrow G'(5, +4) \rightarrow G''(-4, -5)$$

$$E(-4, 1) \rightarrow E'(1, 4) \rightarrow E''(-4, -1)$$

$$O(2, 1) \rightarrow O'(1, -2) \rightarrow O''(2, -1)$$



The vertices of  $\triangle ABC$  are  $A(2, 1)$ ,  $B(-1, 2)$ , and  $C(-1, -1)$ . Three transformations are performed on this triangle. The first is a transformation of the reflection of  $\triangle ABC$  through the  $x$ -axis. Then it is translated left 4 units and down 2 units. Finally, the triangle is rotated  $90^\circ$  counterclockwise.

17. What is the rule for the **first** transformation?

$$(x, y) \rightarrow (x, -y)$$

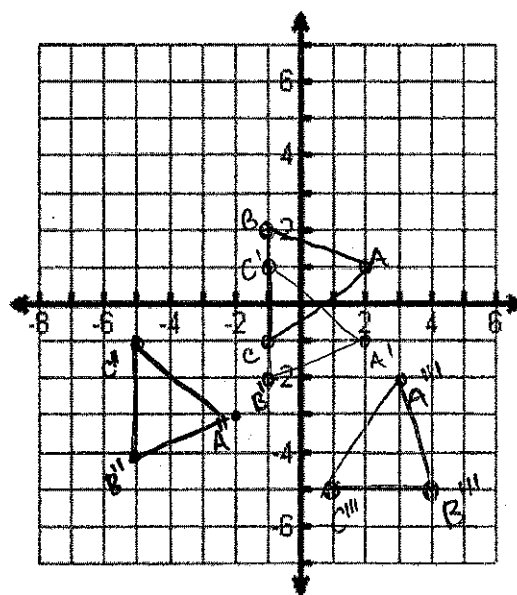
18. List the coordinates after every transformation:

$$A'(2, -1) \rightarrow A''(-2, -3) \rightarrow A'''(3, -2)$$

$$B'(-1, -2) \rightarrow B''(-5, -4) \rightarrow B'''(4, -5)$$

$$C'(-1, 1) \rightarrow C''(-5, -1) \rightarrow C'''(1, -5)$$

19. Graph all of them on the given graph. Don't forget to label!

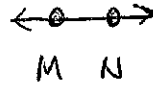


Draw and label a diagram for each figure.

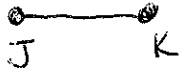
11. point  $W$



12. line  $MN$



13.  $\overline{JK}$

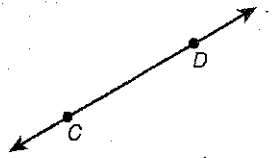


14.  $\overrightarrow{EF}$



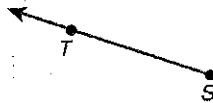
Name each figure using words and symbols.

15.



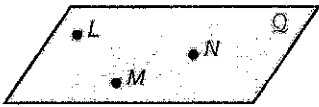
line  $CD$   $\overleftrightarrow{CD}$

16.



ray  $ST$   $\overrightarrow{ST}$

17. Name the plane in two different ways.



plane  $LMN$  plane  $O$

18.



line segment  $WX$   $\overline{WX}$

Form 100-100-100

100-100-100

