

Unit 11 Practice Test: Transformational Geometry NAME Key

7<sup>th</sup> Grade Acc. Math

1. Circle the following word that means the same size and same shape?

- a. Similar      b. compare      **c. congruent**      d. translate

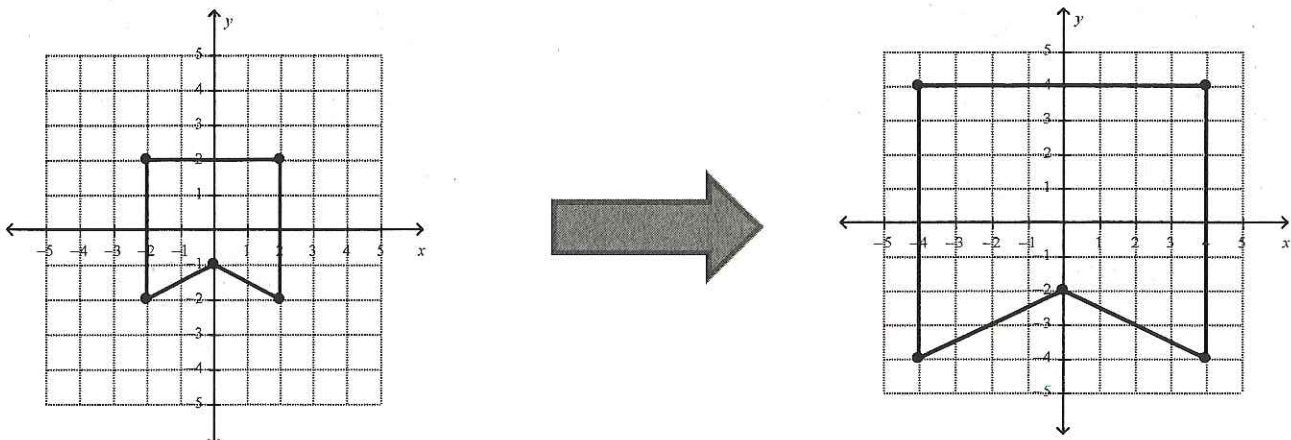
For 2–6, circle the right symbol for each. This symbol  $\cong$  means “congruent” and this symbol  $\sim$  means “similar”.

2. Two figures that have the same shape and size are called:  $\cong$  or  $\sim$
3. Two figures that have the same shape, but different sizes are called:  $\cong$  or  $\sim$
4. A figure has been reflected, rotated, and translated. The pre-image and image are:  $\cong$  or  $\sim$
5. A figure has been dilated by a scale factor of  $\frac{1}{3}$ . The pre-image and image are:  $\cong$  or  $\sim$
6. A figure has been dilated by a scale factor of 3. The pre-image and image are:  $\cong$  or  $\sim$

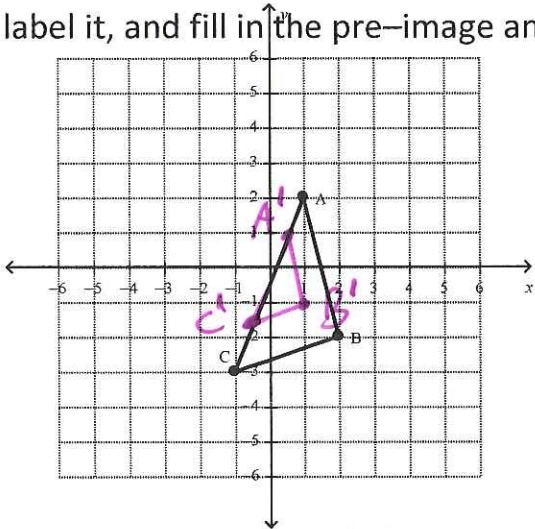
For 7 – 12, identify the missing image points. Don't forget the “( , )”

	Pre-Image	Transformation	Image
7.	(7,9)	Translate right 7 and down 12	(14, -3)
8.	(-21, -4)	Rotate 270° CC	(-4, 21)
9.	(-8, 101)	Reflection over the x-axis.	(-8, -101)
10.	(4, -13)	Rotate 180°	(-4, 13)
11.	(0,0)	Translate 5 left.	(-5, 0)
12.	(15, -63)	Reflection over the y-axis.	(-15, -63)

13. Identify the scale factor of the dilation pictured below. #13 answer: 2



14. Consider the pre-image on the graph and the information below. Draw in the image, label it, and fill in the pre-image and the image coordinates. Don't forget your "( , )"



Center of Dilation (0, 0)      Scale Factor = .5

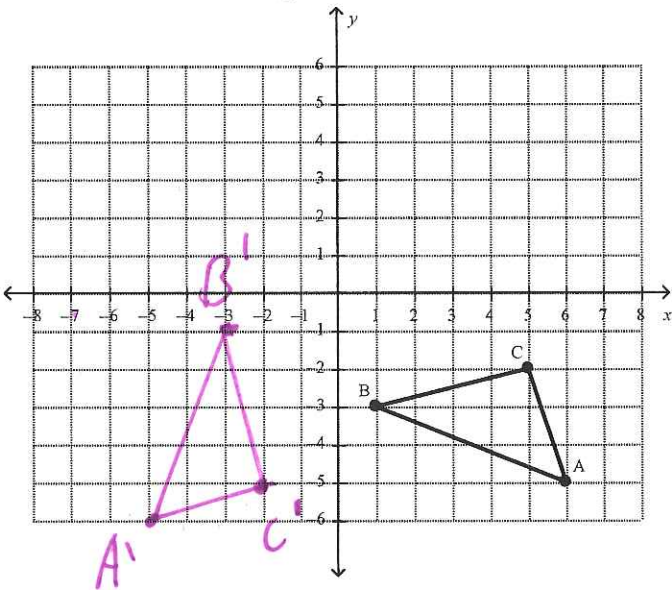
Pre-Image	Image
A <u>(1, 2)</u>	A' <u>(.5, 1)</u>
B <u>(2, -2)</u>	B' <u>(1, -1)</u>
C <u>(-1, -3)</u>	C' <u>(-.5, -1.5)</u>

Rule:  $(\frac{1}{2}x, \frac{1}{2}y)$

For 15 – 20, apply the following transformations for each shape, by doing the following:

- Identify the pre-image coordinates with "( , )"
- Identify the image coordinates with "( , )".
- Draw the new shape and label the vertices. (A' or x'...)

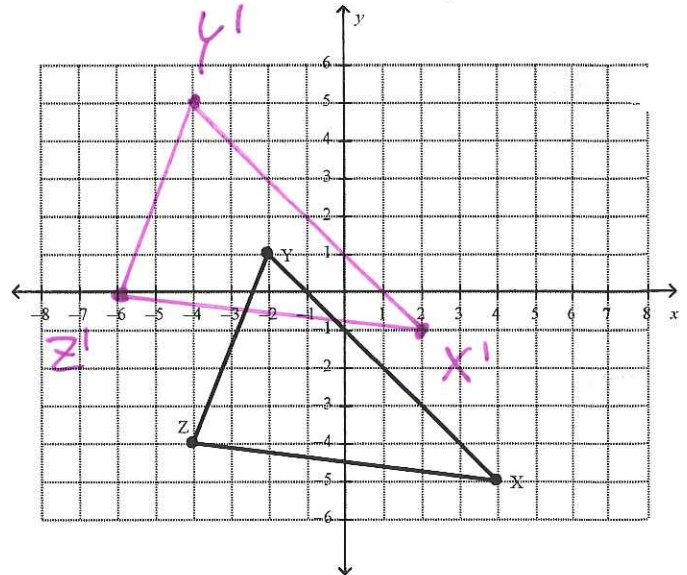
15. Rotate 270 degrees CC



A <u>(6, -5)</u>	A' <u>(-5, -6)</u>
B <u>(1, -3)</u>	B' <u>(-3, -1)</u>
C <u>(5, -2)</u>	C' <u>(-2, -5)</u>

Rule:  $(y, -x)$

16. Translate 2 left and 4 up

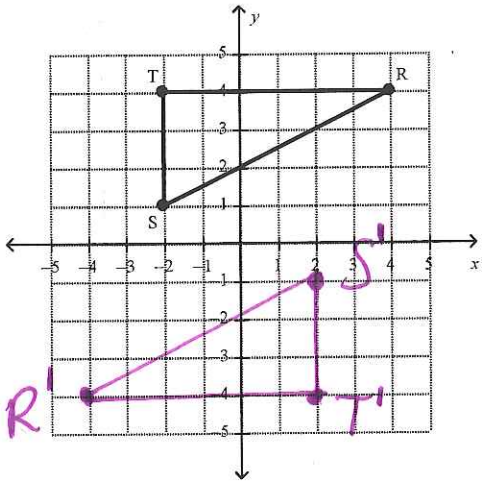


X <u>(4, -5)</u>	X' <u>(-2, -1)</u>
Y <u>(-2, 1)</u>	Y' <u>(-4, 5)</u>
Z <u>(-4, -4)</u>	Z' <u>(-6, 0)</u>

Rule:  $(x-2, y+4)$



17. Rotate  $180^\circ$



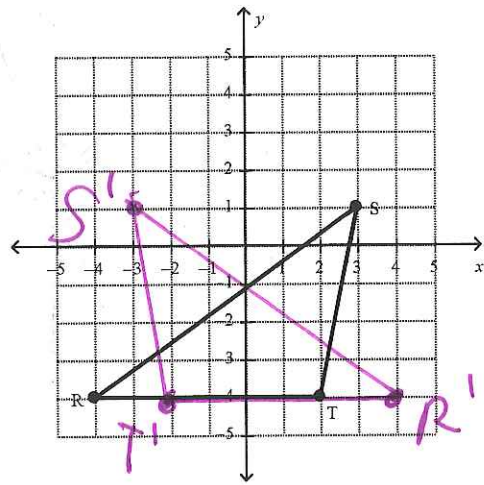
R (4,4)      R' (-4,-4)

S (-2,1)      S' (2,-1)

T (-2,4)      T' (2,-4)

Rule:  $(-x, -y)$

18. Reflect over the y-axis



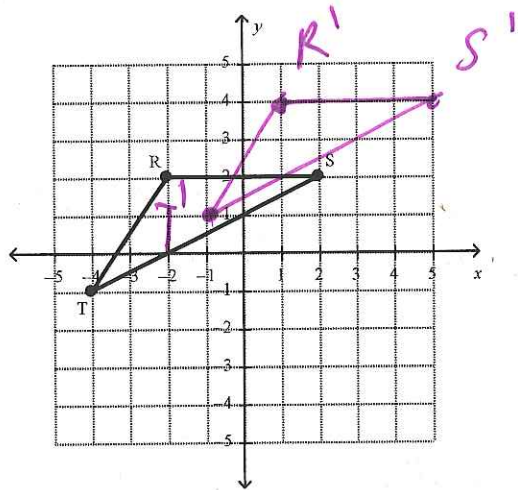
R (-4,-4)      R' (4,-4)

S (3,1)      S' (-3,1)

T (2,-4)      T' (-2,-4)

Rule:  $(-x, y)$

19. Translate 3 right and 2 up



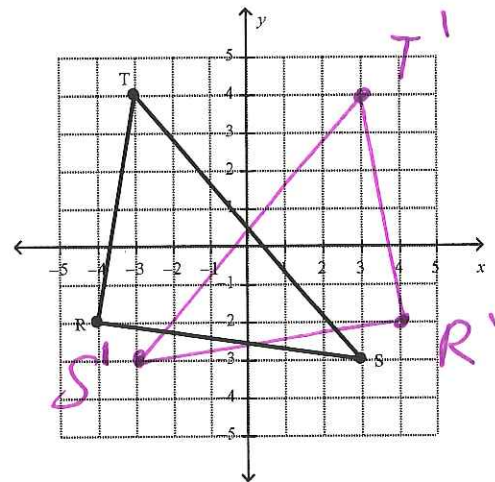
R (-2,2)      R' (1,4)

S (2,2)      S' (5,4)

T (-4,-1)      T' (-1,1)

Rule:  $(x+3, y+2)$

20. Reflect over the y-axis.



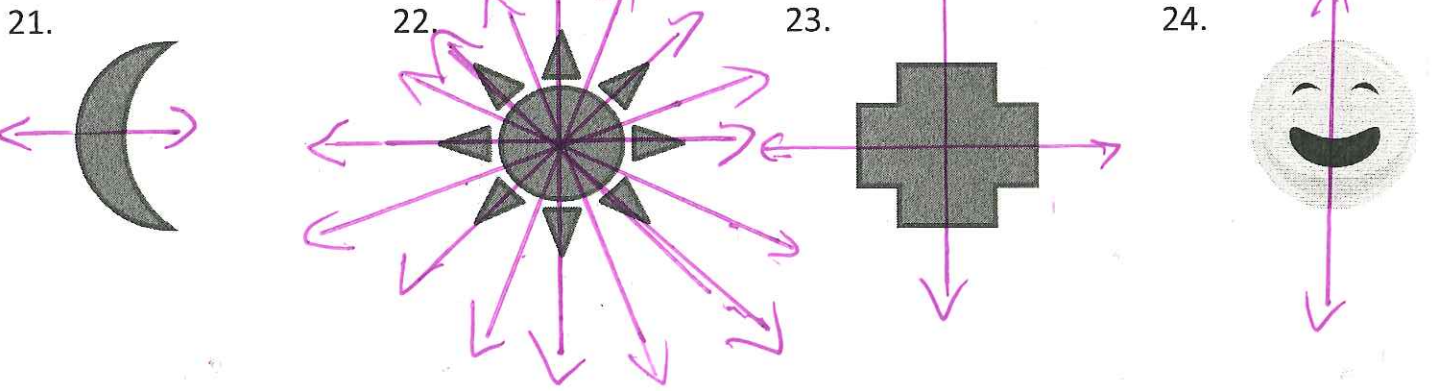
R (-4,-2)      R' (4,-2)

S (3,-3)      S' (-3,-3)

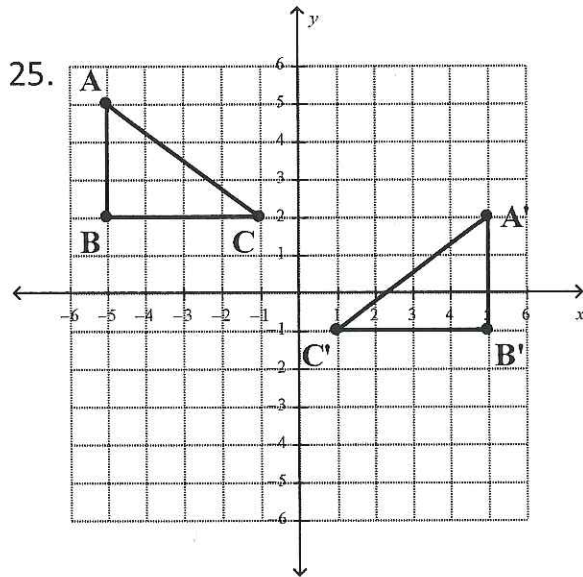
T (-3,4)      T' (3,4)

Rule:  $(-x, y)$

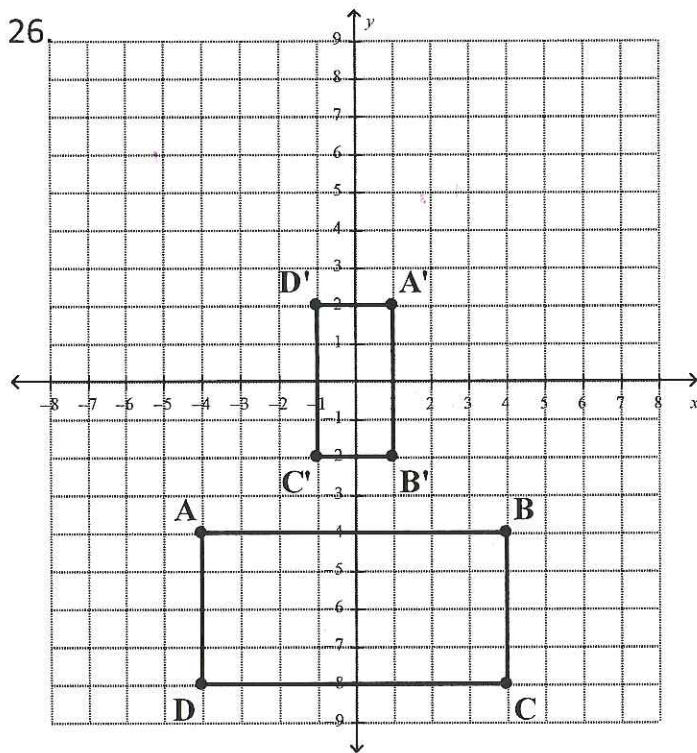
For 21 – 24, draw all lines of symmetry for the following figures.



For 25 & 26, identify the sequence of transformations illustrated in each graph.



- 1) Reflect over the y-axis
- 2) shift  $\downarrow$  3 units



- 1) Dilate by a Scale factor of  $\frac{1}{2}$
- 2) Rotate  $270^\circ$  CC
- 3) Shift  $\rightarrow$  3 units



27. Apply the indicated series of transformations to the triangle. Each transformation is applied to the image of the previous transformation, not the original figure. Make sure you label the correct letter inside the triangle.

- Reflect over the  $x$  - axis
- Rotate  $270^\circ$  CC
- Translate  $(x - 12, y + 4)$
- Reflect over the line  $y = 3$
- Rotate  $180^\circ$  CC
- Translate  $(x, y + 12)$
- Dilate  $(0.5x, 0.5y)$  using  $(0, 0)$  as the center of dilation

8 pts each

56 Total Points

