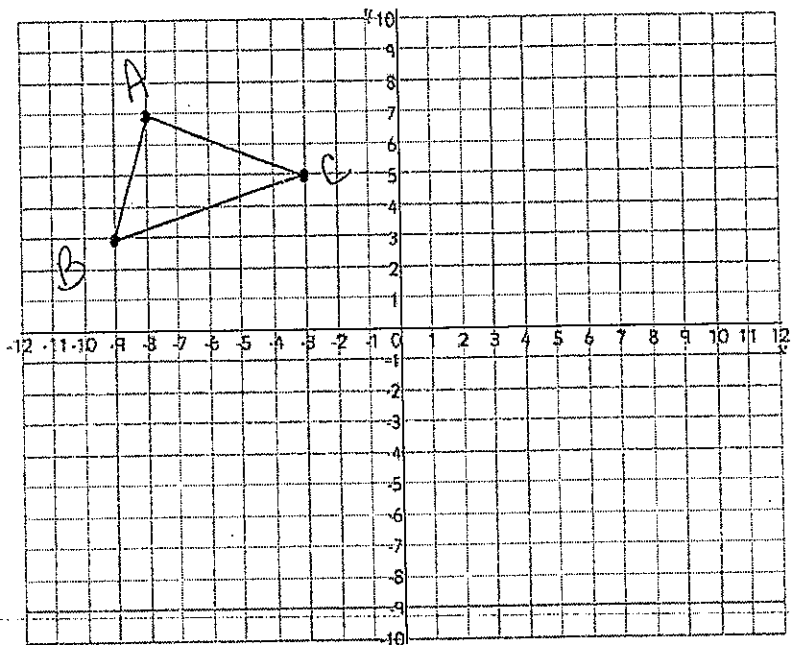


NAME _____ DATE _____

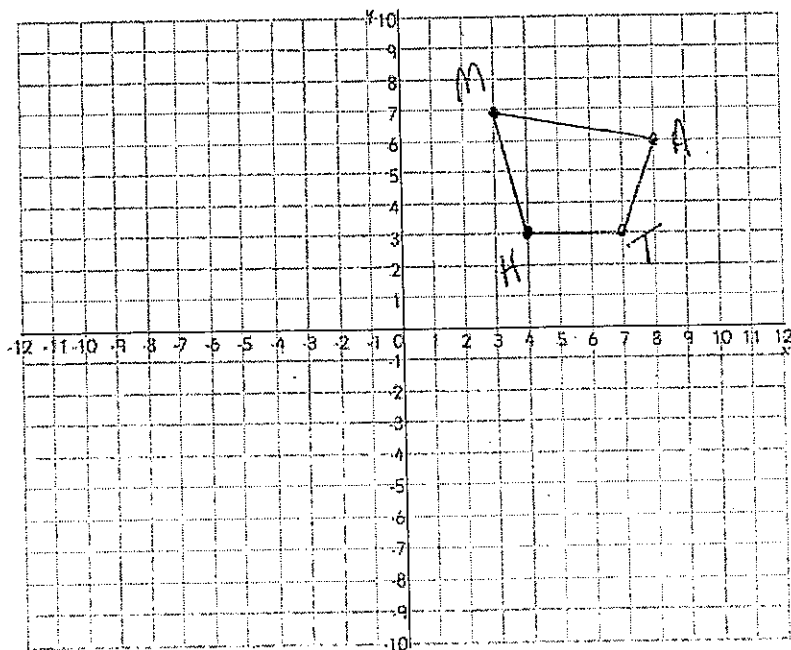
Review of Transformations

Reflections are a FLIP!

1. Reflect triangle ABC in the x-axis.



2. Reflect polygon MATH in the y-axis.



3. If the point $(9,5)$ is reflected in the y -axis, the coordinates of its image would be:

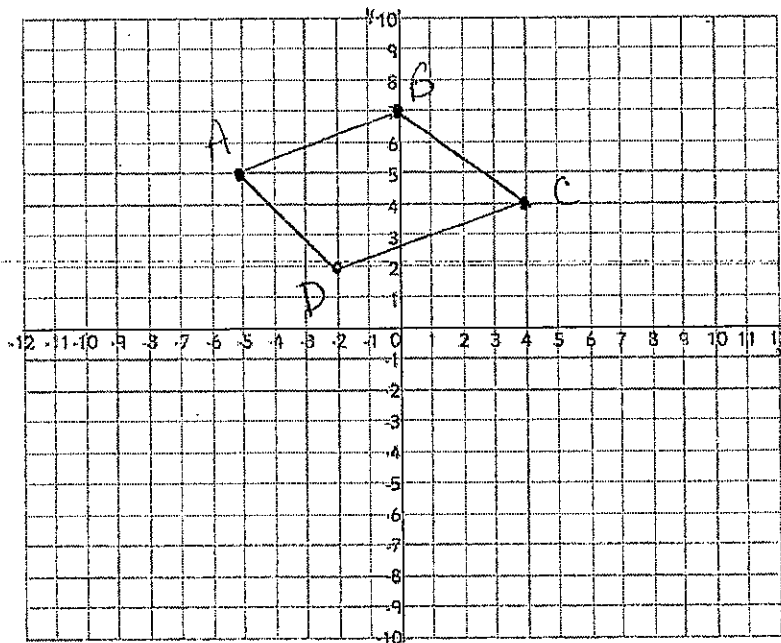
- a) $(5,9)$ b) $(-9,-5)$ c) $(-9,5)$ d) $(9,-5)$

4. If the point $(3,-1)$ is reflected in the x -axis, the coordinates of its image would be:

- a) $(3,1)$ b) $(-1,-3)$ c) $(-3,1)$ d) $(1,3)$

Translations are a SLIDE!

5. Translate figure ABCD two units to the right and five units down.



6. If the point $(-4, 6)$ undergoes the translation $T_{(2,5)}$, then the image would have the coordinates:

- a) $(-2, 11)$ b) $(-6, 11)$ c) $(-8, 30)$ d) $(-2, 6)$

7. If the point $(5, 6)$ undergoes the translation $T_{(x-3, y+1)}$, then the image would have the coordinates:

- a) $(-15, 6)$ b) $(2, 7)$ c) $(8, 7)$ d) $(-2, 5)$

Dilations can get larger or smaller depending on the scale factor.

8. Write what would happen to a polygon with the following scale factors:

a) D_2

b) $D_{1/4}$

9. Point A (4,5) was transformed to point A' (12, 15). What was the scale factor?

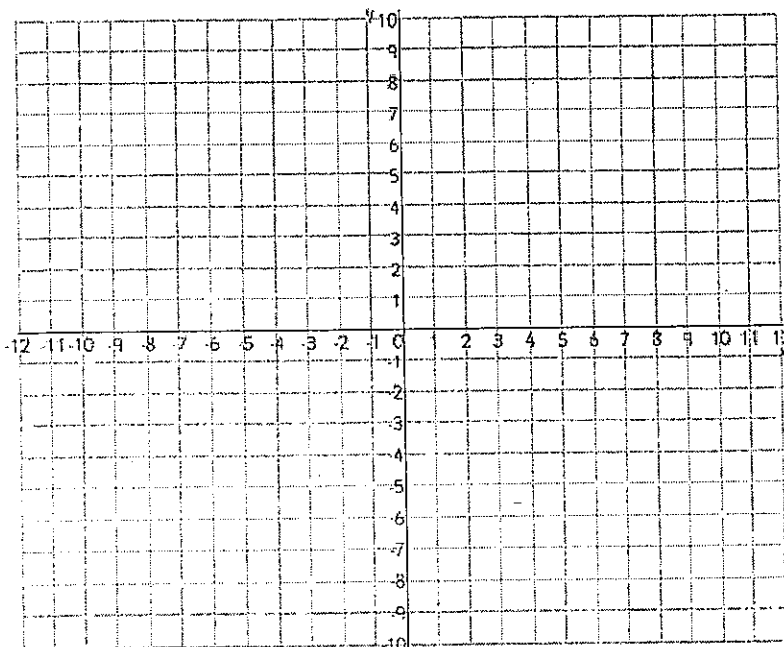
10. If point A (-12,8) is transformed under a dilation with a scale factor of $\frac{1}{2}$, what will be the coordinates of A'?

11. Triangle CAT is to be dilated using a scale factor of $(x, y) \rightarrow (3x, 3y)$

a) Complete the chart below.

| Triangle CAT | Triangle C'A'T' |
|--------------|-----------------|
| C (-2,3) | C' |
| A (0,1) | A' |
| T (2,3) | T' |

b) Graph both triangle CAT and triangle C'A'T'.



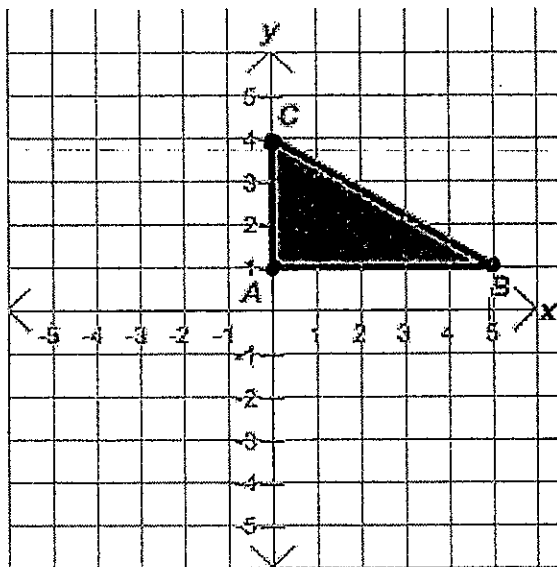
c) Are the figures congruent or similar? _____

Rotations are a TURN!

12. What are the coordinates of the image of point A (3, -6) after a rotation of 90° counterclockwise about the origin? _____

13. What are the coordinates of the image of point B (-4, 2) after a rotation of 180° counterclockwise about the origin? _____

14. a) Rotate triangle ABC 90° counterclockwise about the origin.



b) Write the coordinates of triangle A'B'C'.

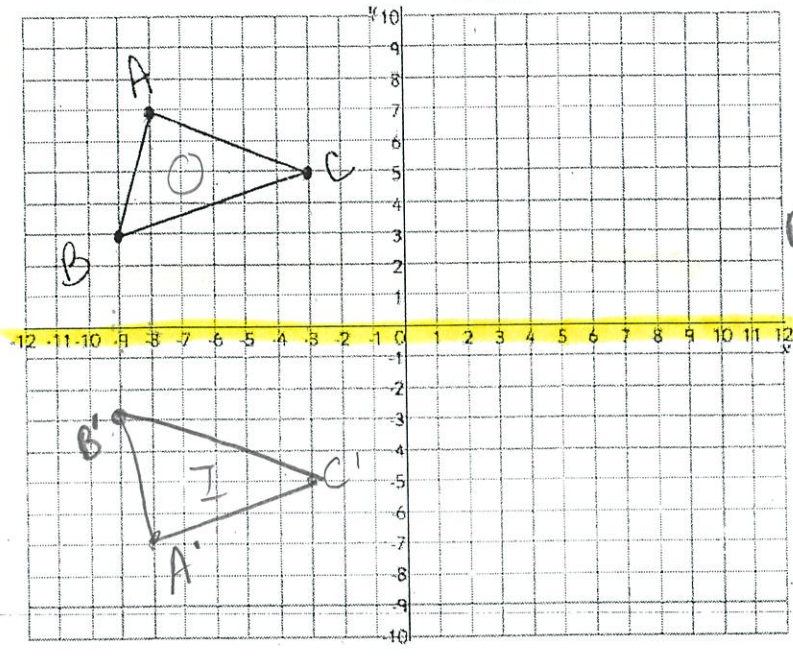
A' (_____, _____)

B' (_____, _____)

C' (_____, _____)

Reflections are a FLIP!

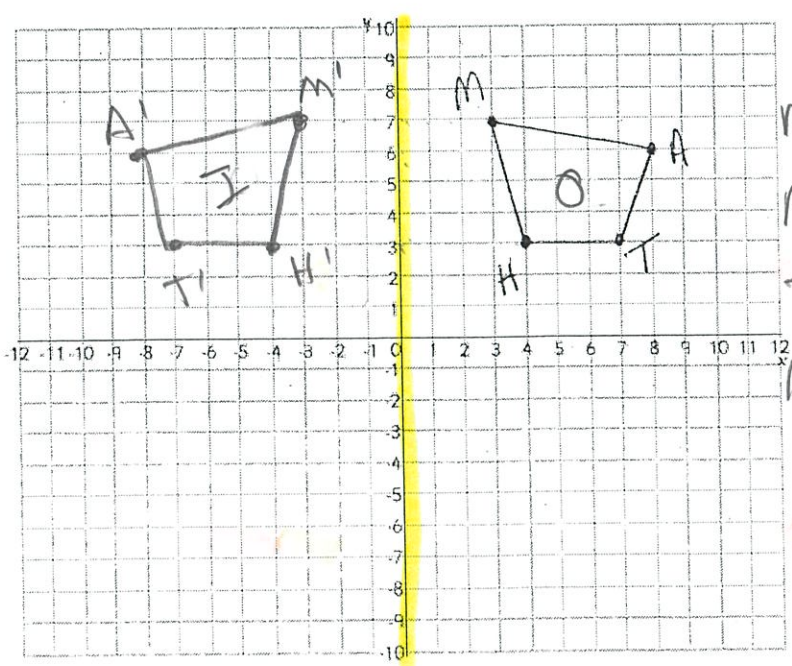
1. Reflect triangle ABC in the x-axis. → change the sign of the y-coordinate



$A(-8, 7) \rightarrow A'(-8, -7)$
 $B(-9, 3) \rightarrow B'(-9, -3)$
 $C(-3, 5) \rightarrow C'(-3, -5)$

★ Rigid (congruent)
 ↓
 same shape + size

2. Reflect polygon MATH in the y-axis. → change the sign of the x-coordinate



$M(3, 7) \rightarrow M'(-3, 7)$
 $A(8, 6) \rightarrow A'(-8, 6)$
 $T(7, 3) \rightarrow T'(-7, 3)$
 $H(4, 3) \rightarrow H'(-4, 3)$

★ Rigid (congruent)
 ↓
 same shape + size

3. If the point (9,5) is reflected in the y-axis, the coordinates of its image would be:

- a) (5,9) b) (-9,-5) c) (-9, 5) d) (9, -5)

LABEL → change the sign of the x-coordinate

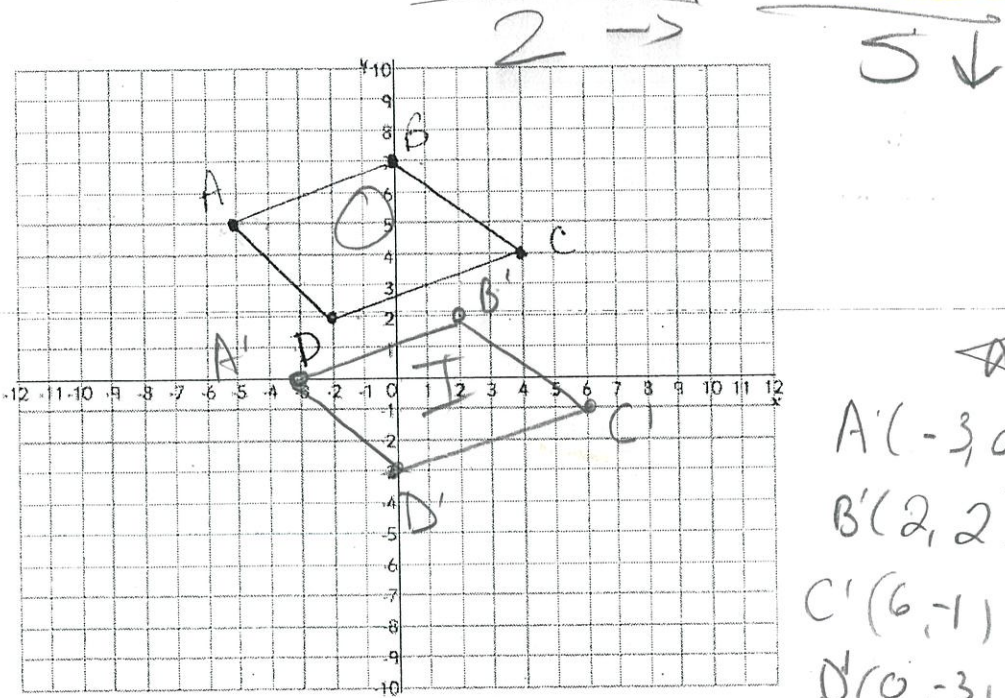
4. If the point (3,-1) is reflected in the x-axis, the coordinates of its image would be:

- a) (3,1) b) (-1,-3) c) (-3, 1) d) (1, 3)

→ change the sign of the y-coordinate

Translations are a SLIDE!

5. Translate figure ABCD two units to the right and five units down.



★ Rigid (congruent)
 ↳ same shape
 ↳ size

A'(-3, 0)
 B'(2, 2)
 C'(6, -1)
 D'(0, -3)

(Combine like terms)

6. If the point (-4, 6) undergoes the translation $T_{(2,5)}$, then the image would have the coordinates:

- a) (-2, 11) b) (-6, 11) c) (-8, 30) d) (-2, 6)

$(x+2, y+5)$
 $(-4+2, 6+5)$
 $(-2, 11)$

7. If the point (5, 6) undergoes the translation $T_{(x-3, y+1)}$, then the image would have the coordinates:

- a) (-15, 6) b) (2, 7) c) (8, 7) d) (-2, 5)

$(5-3, 6+1)$
 $(2, 7)$

Combine like terms

Dilations can get larger or smaller depending on the scale factor.

$D_{\#}, k=\#, (x,y) \rightarrow (\#x, \#y)$
 ↳ scale factor

→ multiply

always multiply by the scale factor

8. Write what would happen to a polygon with the following scale factors:

- a) D_2 enlargement
 b) $D_{1/4}$ reduction

scale factor

9. Point A (4, 5) was transformed to point A' (12, 15). What was the scale factor?

$\frac{12}{4} = 3$ $\frac{15}{5} = 3$ Scale factor = 3

10. If point A (-12, 8) is transformed under a dilation with a scale factor of $\frac{1}{2}$, what will be the coordinates of A'?

A' (-6, 4)

multiply by $\frac{1}{2}$

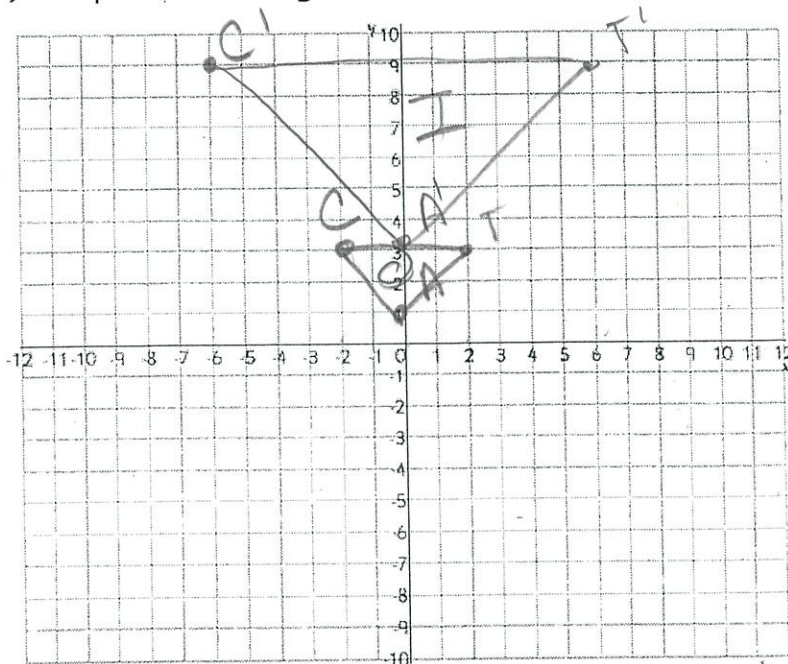
11. Triangle CAT is to be dilated using a scale factor of $(x,y) \rightarrow (3x, 3y)$

a) Complete the chart below.

Scale factor = 3
 multiply by 3

| Triangle CAT | Triangle C'A'T' |
|--------------|-----------------|
| C (-2, 3) | C' (-6, 9) |
| A (0, 1) | A' (0, 3) |
| T (2, 3) | T' (6, 9) |

b) Graph both triangle CAT and triangle C'A'T'.



NON-rigid (similar)
 ↑
 same shape diff size

c) Are the figures congruent or similar?

Similar (NON-rigid)

- Same size
- Diff size
- Same shape
- Same shape

Rotations are a **TURN!**

12. What are the coordinates of the image of point A (3, -6) after a rotation

of **90° counterclockwise** about the origin? A'(6, 3)

on its side → left
Rule: $(-y, x)$

13. What are the coordinates of the image of point B (-4, 2) after a rotation

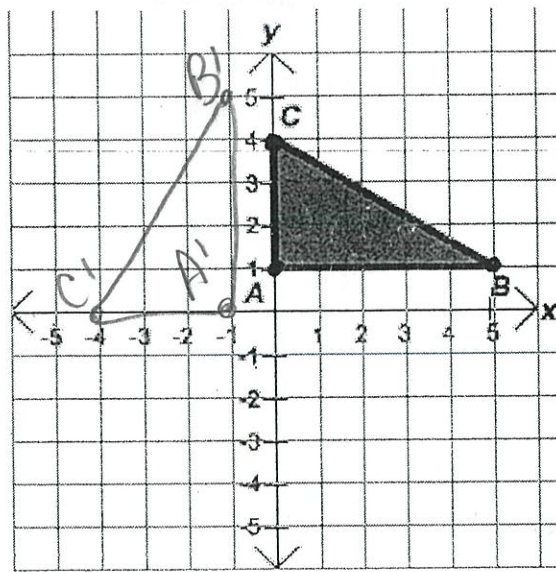
of **180° counterclockwise** about the origin? B'(4, -2)

Upside down ←
Rule: $(-x, -y)$ ✗ change the sign of Both x & y value

★ same as Reflection over Origin

14. a) Rotate triangle ABC 90° counterclockwise about the origin.

on its side → left



Rule: $(-y, x)$

★ Rigid (congruent)

Rule: $(-y, x)$

b) Write the coordinates of triangle A'B'C'.

A' (-1, 0)

A (0, 1)

B' (-1, 5)

B (5, 1)

C' (-4, 0)

C (0, 4)