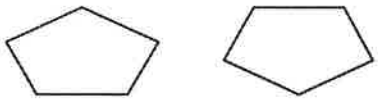
Name Solutions

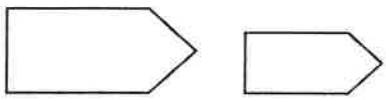
3-1 Additional Practice

Reflections

Tell whether the transformation appears to be a rigid motion. Explain.

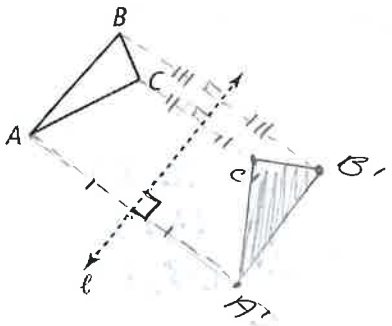
1. 

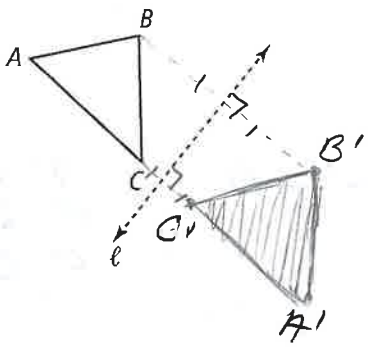
Yes, angle measure; length are the same

2. 

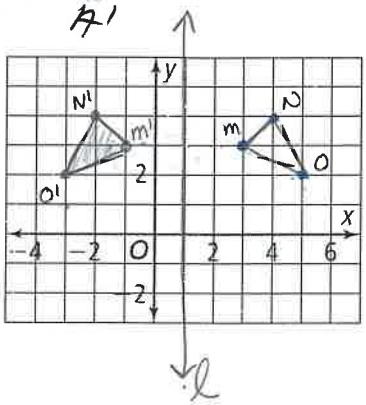
NO, size is different

Show the reflection of $\triangle ABC$ across line ℓ.

3. 

4. 

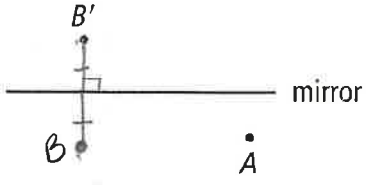
5. Suppose the equation of line ℓ is $x = 1$. Given points $M(3, 3)$, $N(4, 4)$, and $O(5, 2)$, graph $\triangle MNO$ and the reflection image $R_\ell(\triangle MNO)$.



6. **Understand** What is the reflection rule for the triangle and image with coordinates $A(2, 4)$, $B(4, 6)$, $C(5, 2)$, and $A'(-4, -2)$, $B'(-6, -4)$, $C'(-2, -4)$?

$R_m(x,y) = (y,-x)$ where the equation of line m is $y = -x$

7. **Apply** Student A sits in a chair facing a mirror and sees the reflection image B' of Student B in the mirror. Show the actual position of Student B.



Name _____

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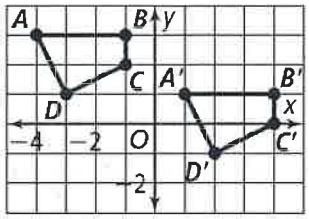
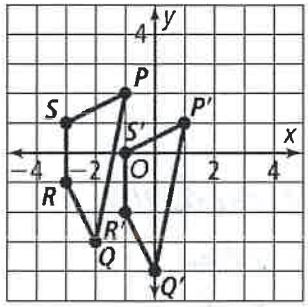
3-2 Additional Practice

Translations

What is the rule for the translation shown?

1. 

$T\langle 5, -2\rangle$

2. 

$T\langle 2, -1\rangle$

The vertices of $\triangle ABC$ are $A(2, -3)$, $B(-3, -5)$, and $C(4, 1)$. For each translation, give the vertices of $\triangle A'B'C'$.

3. $T_{\langle -2, 3\rangle}$ $(\triangle ABC)$

$A'(0,0)$ $C'(2,4)$
$B'(-5,-2)$

4. $T_{\langle -4, -1\rangle}$ $(\triangle ABC)$

$A'(-2,-4)$
$B'(-7,-6)$
$C'(0,0)$

5. $T_{\langle 4, 6\rangle}$ $(\triangle ABC)$

$A'(6,3)$
$B'(1,1)$
$C'(8,7)$

Write the composition of transformations as one transformation. Graph 6-8 in your spiral.

6. $T_{\langle 4, 5\rangle} \circ T_{\langle 3, 1\rangle}$

$T\langle 7, 6\rangle$

7. $T_{\langle -1, -3\rangle} \circ T_{\langle 2, -2\rangle}$

$T\langle 1, -5\rangle$

8. $T_{\langle 1, 1\rangle} \circ T_{\langle -4, -3\rangle}$

$T\langle -3, -2\rangle$

Given $\triangle XYZ$ with vertices $X(-2, 1)$, $Y(-1, 3)$, and $Z(-4, 2)$, write the translation equivalent to the composition of transformations. Suppose the equation of line m is $x = 5$, the equation of line n is $y = 4$, and the equation of line p is $x = 3$.

9. $R_m \circ R_{y\text{-axis}}$ (2nd, 1st)

$T\langle 10, 0\rangle (\triangle XYZ)$

10. $R_n \circ R_{x\text{-axis}}$ (2nd, 1st)

$T\langle 0, -8\rangle (\triangle XYZ)$

11. $R_p \circ R_{y\text{-axis}}$ (2nd, 1st)

$T\langle 6, 0\rangle (\triangle XYZ)$

12. **Understand** How far apart are two parallel lines ℓ and m such that $T_{\langle 4, 0\rangle}(\triangle DEF) = (R_m \circ R_\ell)(\triangle DEF)$? 2 units

13. **Apply** The composition of rigid motions $T_{\langle 10, 2\rangle} \circ T_{\langle -23, -3\rangle}$ describes the route of a limousine in New York City from its starting position. How would you describe the route in words?

The limousine drives 23 blocks west and 3 blocks south, then 10 blocks east and 2 blocks north.