

Congruence and Transformations

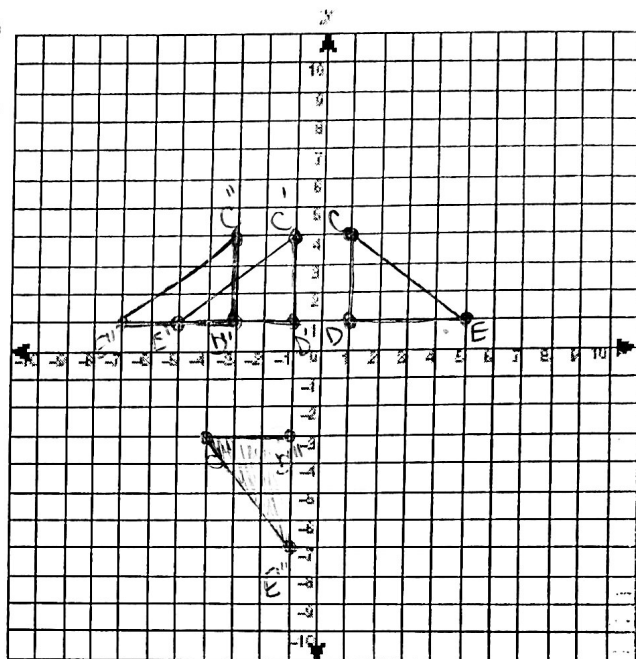
Key

Triangle CDE has vertices at $C(1,4)$, $D(1,1)$, and $E(5,1)$.

Reflection across the y -axis, translate $(x,y) \rightarrow (x-2,y)$, then rotate 90°

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

Pre-Image	Image 1	Image 2	Image 3
$C(1,4)$	$C'(-1,4)$	$C''(-3,4)$	$C'''(-4,-3)$
$D(1,1)$	$D'(-1,1)$	$D''(-3,1)$	$D'''(-1,-3)$
$E(5,1)$	$E'(-5,1)$	$E''(-7,1)$	$E'''(-1,-7)$



1. Graph pre-image
2. Find the lengths of the sides:
 - a. \overline{CD} 3 units
 - b. \overline{DE} 4 units
3. Graph image 1
4. Find the lengths of the sides:
 - a. $\overline{C'D'}$ 3 units
 - b. $\overline{D'E'}$ 4 units
5. Are the triangles congruent or similar? *congruent*
6. Graph image 2
7. Find the lengths of the sides:
 - a. $\overline{C''D''}$ 3 units
 - b. $\overline{D''E''}$ 4 units
8. Are the triangles congruent or similar? *congruent*
9. Graph image 3
10. Find the lengths of the sides:
 - a. $\overline{C'''D'''}$ 3 units
 - b. $\overline{D'''E'''}$ 4 units
11. Are the triangles congruent or similar? *congruent*

Therefore: What three transformations produce congruent shapes?

1. reflection
2. translation
3. rotation