

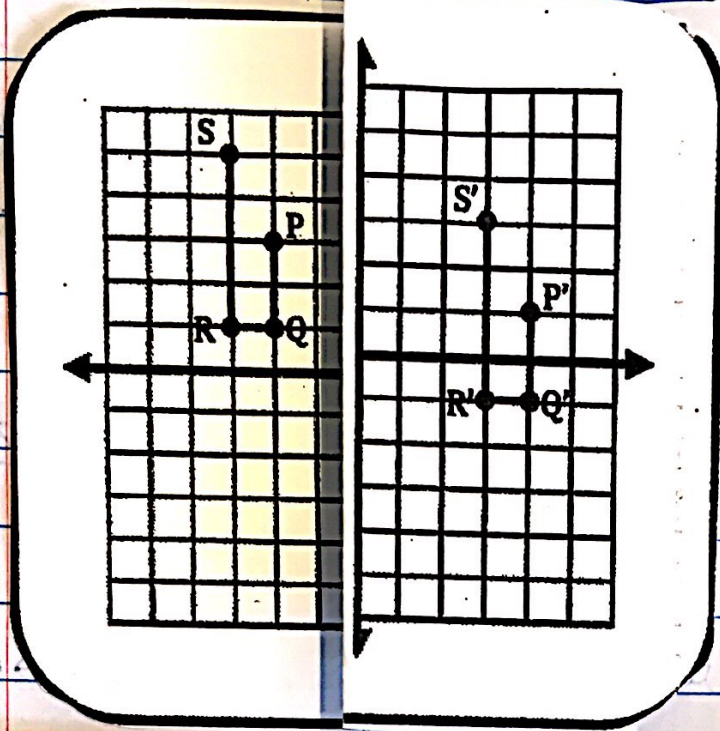
Unit 1: Transformations

Vocabulary

1. **Congruent Figures** - two or more polygons that have the same shape and size
2. **Transformation** of a geometric figure - is a change in its position, shape or size
3. **Preimage** - original figure
 - Notation: letter • Ex: A , \overline{AB} , $\triangle ABC$
4. **Image** - new or resulting figure
 - Notation: letter with a prime symbol
 - Ex: A' , $A'B'$, $\triangle A'B'C'$
5. **Isometry** - transformation in which the preimage and image are the same shape and size (congruent)
 - Ex: translation, reflection, rotation
6. **Translation** - an isometry that maps all points to the same distance and the same direction

Translations

TRANSLATIONS ARE CONGRUENT



Coordinate Rule:

$$(x + 6, y - 2)$$

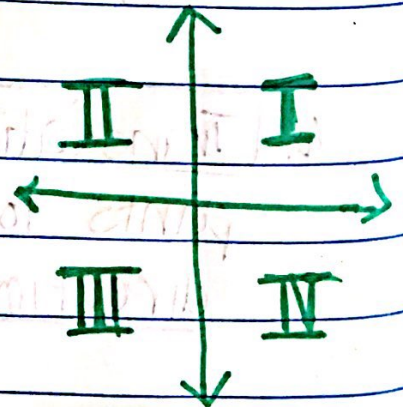
Right six units, down two units

Vector Rule:

$$\langle 6, -2 \rangle$$

Here's some helpful hints!

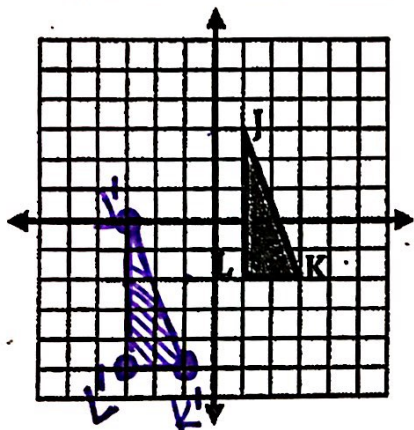
Translate in the ← x direction →	↑ Translate in the y direction ↓
x+ Right	y+ Up
x- Left	y- Down



Examples of Translations

#1

Translate $\triangle JKL$ left 4 units and down 3 units.



$$(x-4, y-3)$$

$$\langle -4, -3 \rangle$$

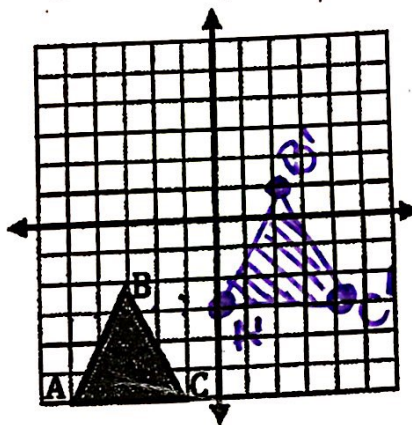
$$J(1, 3) \rightarrow J'(-3, 0)$$

$$L(1, -2) \rightarrow L'(-3, -5)$$

$$K(3, -2) \rightarrow K'(-1, -5)$$

#2

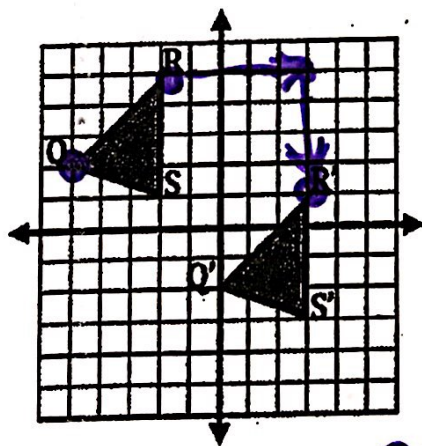
Translate $\triangle ABC$ up 3 units and right 5 units.



$$(x+3, y+5)$$

$$\langle 3, 5 \rangle$$

#3



Describe a translation that maps $\triangle QRS$ to $\triangle Q'R'S'$

$$(x+5, y-4)$$

$$\langle 5, -4 \rangle$$

Right 5, Down 4