

Geometry 9.2 *Slide*
Draw translations
Draw translations on the coordinate plane

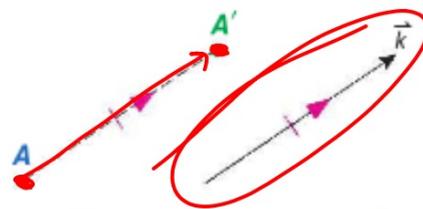
vector
component form *horiz, vertical*
translation
translation vector *$\langle 3, 5 \rangle$*
coordinate plane

activity: letters

KeyConcept Translation

A translation is a function that maps each point to its image along a vector, called the **translation vector**, such that

- each segment joining a point and its image has the same length as the vector, and
- this segment is also parallel to the vector.

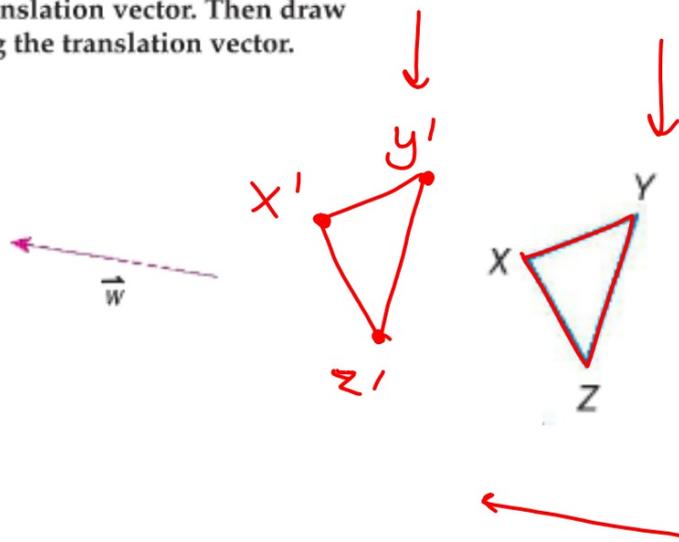


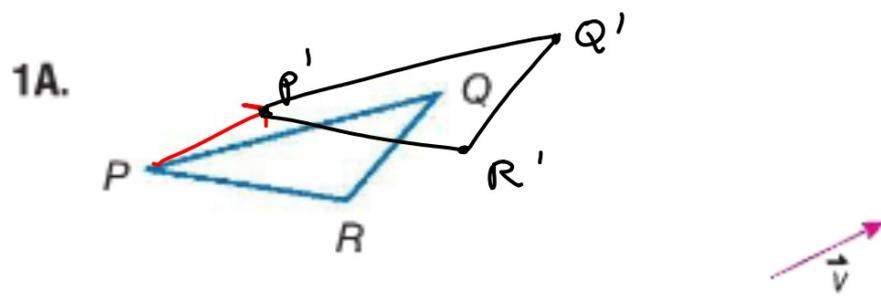
Point A' is a translation of point A along translation vector \vec{k} .

What direction? How far?

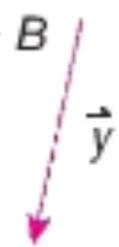
Example 1 Draw a Translation

Copy the figure and the given translation vector. Then draw the translation of the figure along the translation vector.

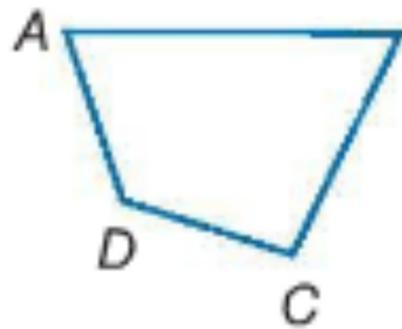




Maybe tissue paper?



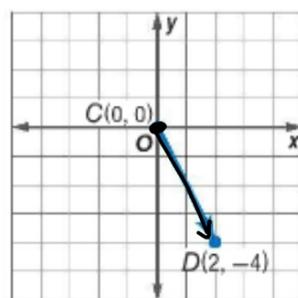
1B.



component form
< >

2 Draw Translations in the Coordinate Plane Recall that a vector in the coordinate plane can be written as $\langle a, b \rangle$, where a represents the horizontal change and b is the vertical change from the vector's tip to its tail. \overline{CD} is represented by the ordered pair $\langle 2, -4 \rangle$.

Written in this form, called the component form, a vector can be used to translate a figure in the coordinate plane.



$\langle 2, -4 \rangle$

Example 2 Translations in the Coordinate Plane

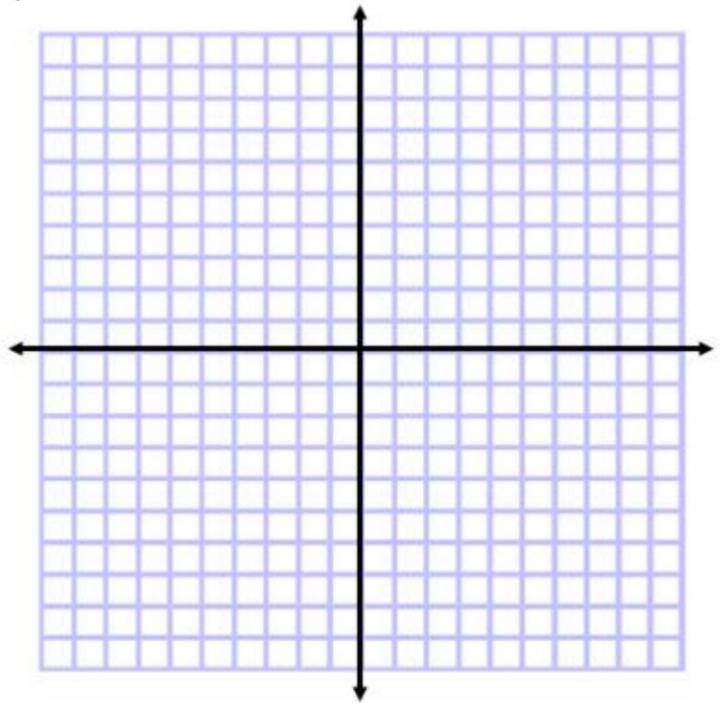
$\langle x, y \rangle$

Graph each figure and its image along the given vector.

a. $\triangle EFG$ with vertices $E(-7, -1)$, $F(-4, -4)$, and $G(-3, -1)$, $\langle 2, 5 \rangle$

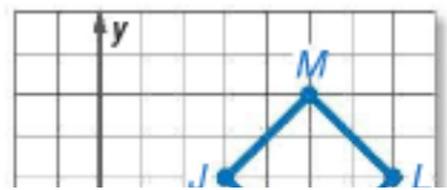
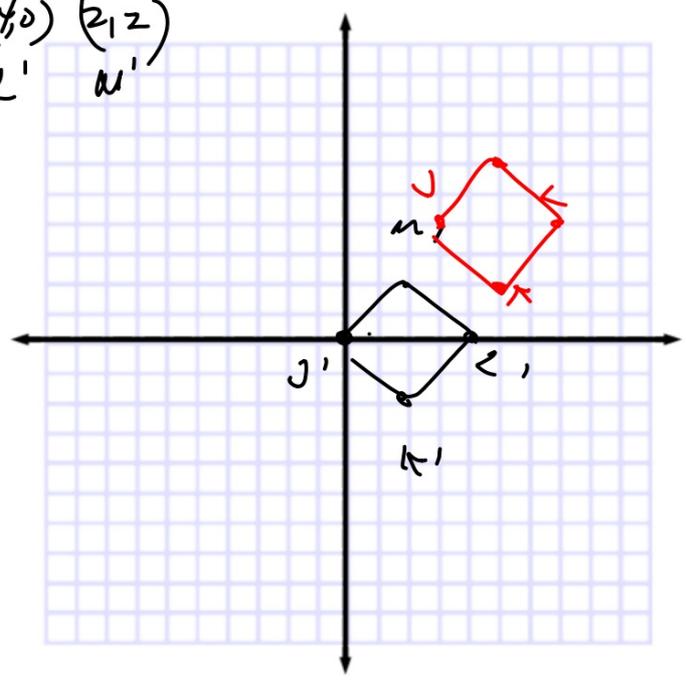
$E'(-5, 4)$ $F'(-2, 1)$ $G'(-1, 4)$

Each point moves by the same amount $\langle 2, 5 \rangle$
(what is the code?)

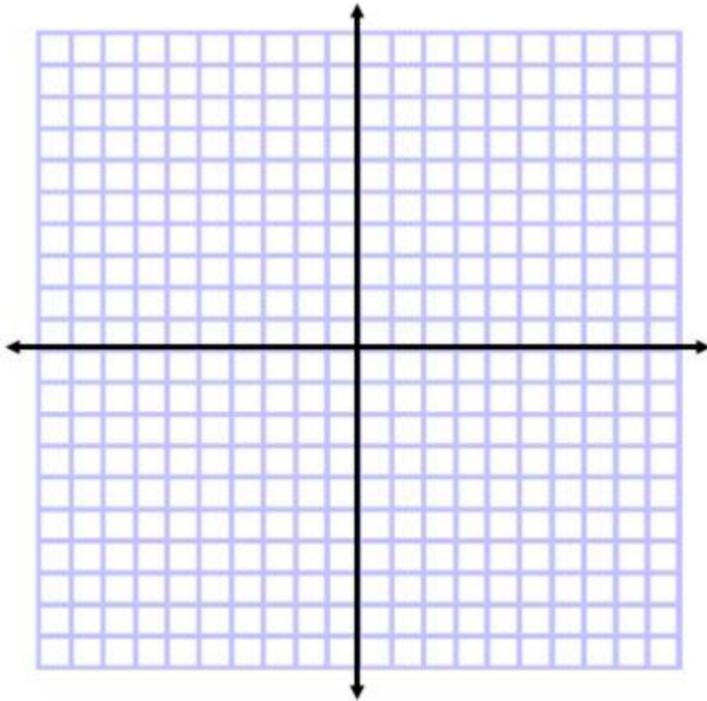


b. square JKLM with vertices $J(3, 4)$, $K(5, 2)$, $L(7, 4)$, and $M(5, 6)$ $(-3, -4)$

$(0, 0)$ $(2, -2)$ $(4, 0)$ $(2, 2)$
 J' K' L' M'

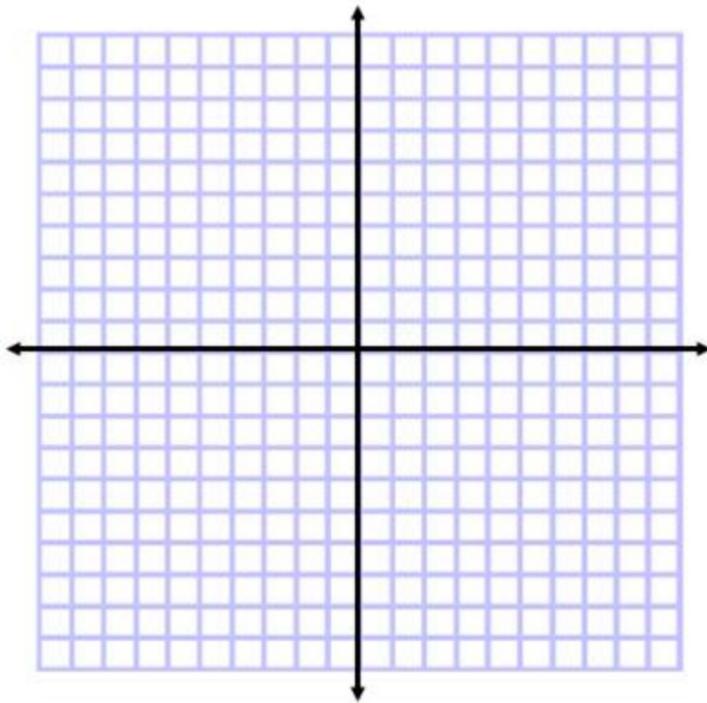


2A. $\triangle ABC$ with vertices $A(2, 6)$, $B(1, 1)$, and $C(7, 5)$; $(-4, -1)$
 $-4-1$ $-4-1$ $-4-1$
 $(-2, 5)$ $(-3, 0)$ $(3, 4)$
 A' B' C'



Whiteboards/notes

- 2B. quadrilateral $QRST$ with vertices $Q(-8, -2)$, $R(-9, -5)$, $S(-4, -7)$, and $T(-4, -2)$: (7.1)



9.2

9-21, 23, 24

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