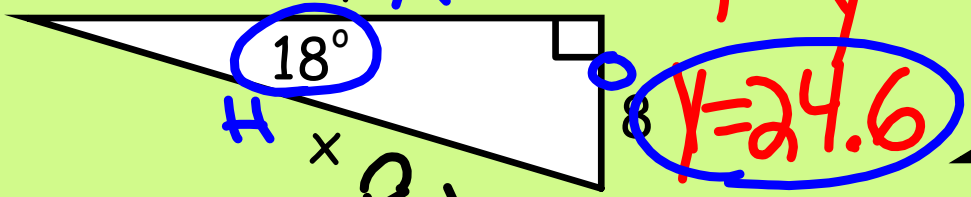
2/18/20 - Warm Up Problem

Find the value of each variable.



$\tan(18) = \frac{8}{y}$

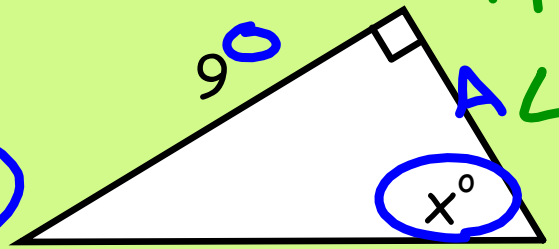
$y = 24.6$

$8 = y \cdot \tan(18)$

$\sin 18 = \frac{8}{x}$

25.89

$\frac{8}{\sin(18)} = \frac{\sin(18) \cdot x}{\sin(18)}$

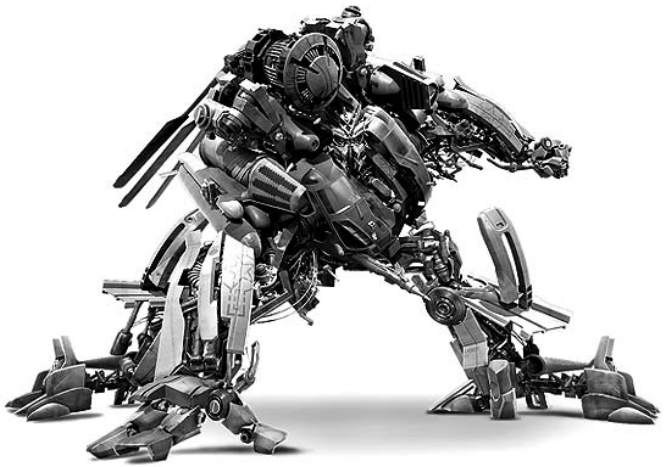


$\sin(x) = \frac{9}{14}$

$40°$

$\sin^{-1}(9/14)$

WHAT ARE TRANSFORMATIONS?

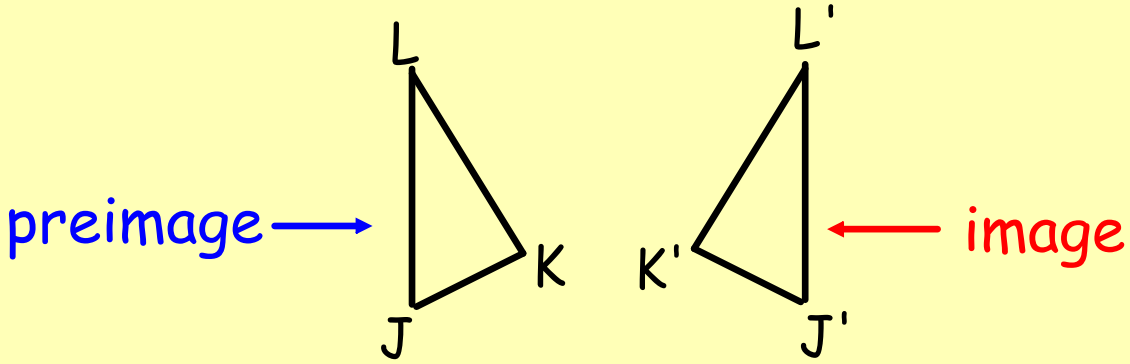


Section 9.1 - Translations

Goals: identify rigid motion transformations (isometries)
graph and write function rules for transformations

Transformation: a function that changes the position, shape, and/or size of a figure

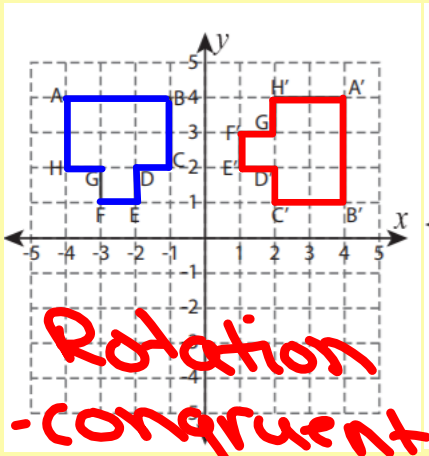
Preimage: the input (original figure)
Image: the output (transformed figure)

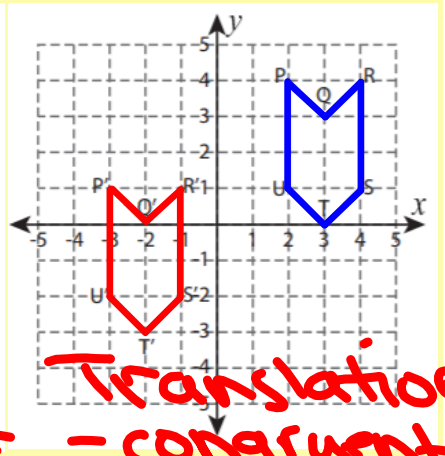


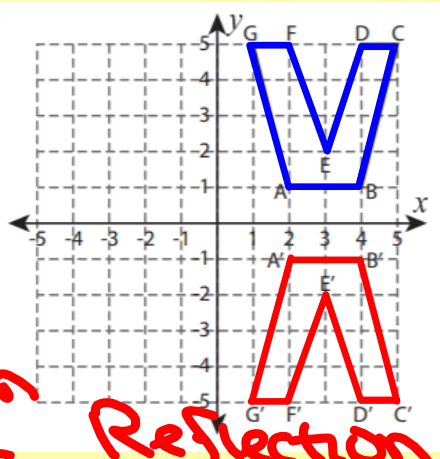
Rigid Motions

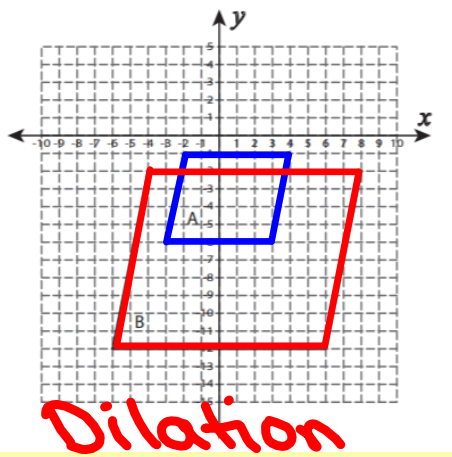
Describe each transformation?

Is the image congruent to the preimage?





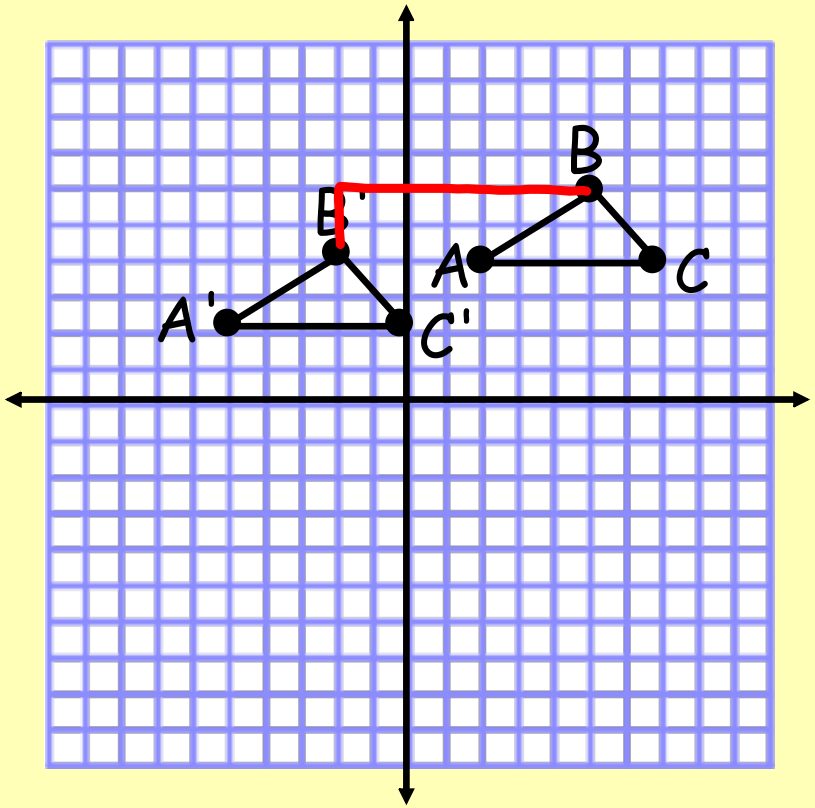




Rigid Motion/Isometry: a transformation that preserves distance and angle measure

- the preimage and image are congruent

Translation: (slide) moves all points of a figure the same distance in the same direction



Function Notation

$T_{<x,y>}(A) = A'$ means

Point A has been translated x units right/left and y units up/down

(+ right, − left, + up, − down)

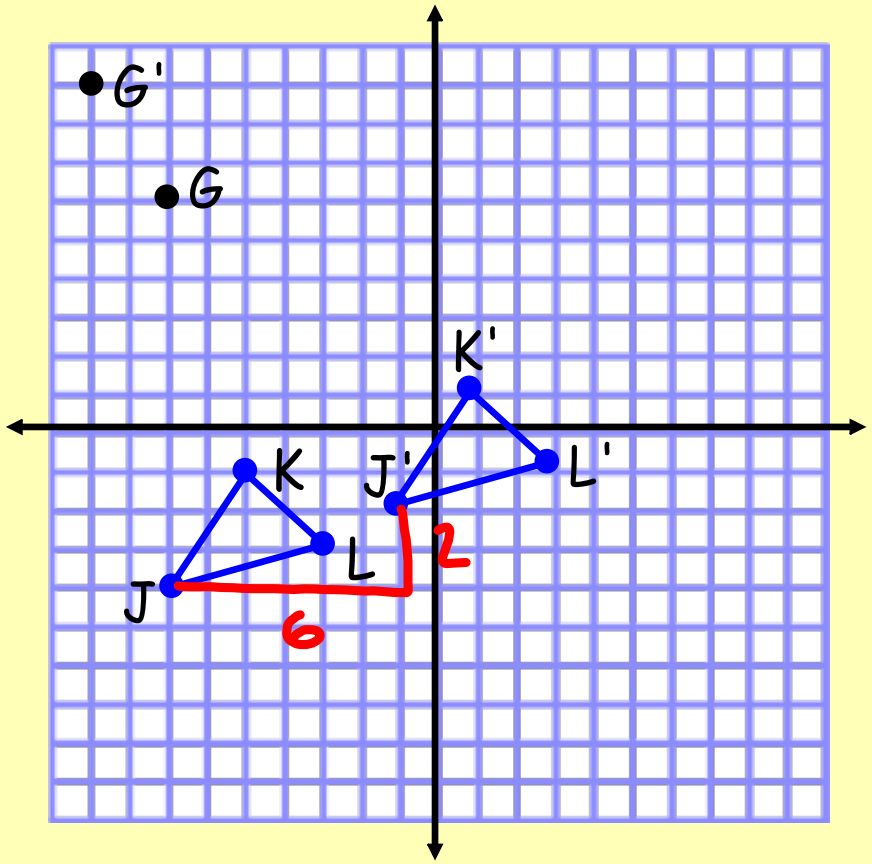
How many units has ΔABC been translated?

down 2 left 7

Write a rule in function notation to describe the translation.

$T_{<-7,-2>}(\Delta ABC)$

Write a rule in function notation to describe the translation of each figure.



Point G

$T_{\langle -2,3 \rangle}(G)$

ΔJKL

$T_{\langle 6,2 \rangle}(\Delta JKL)$

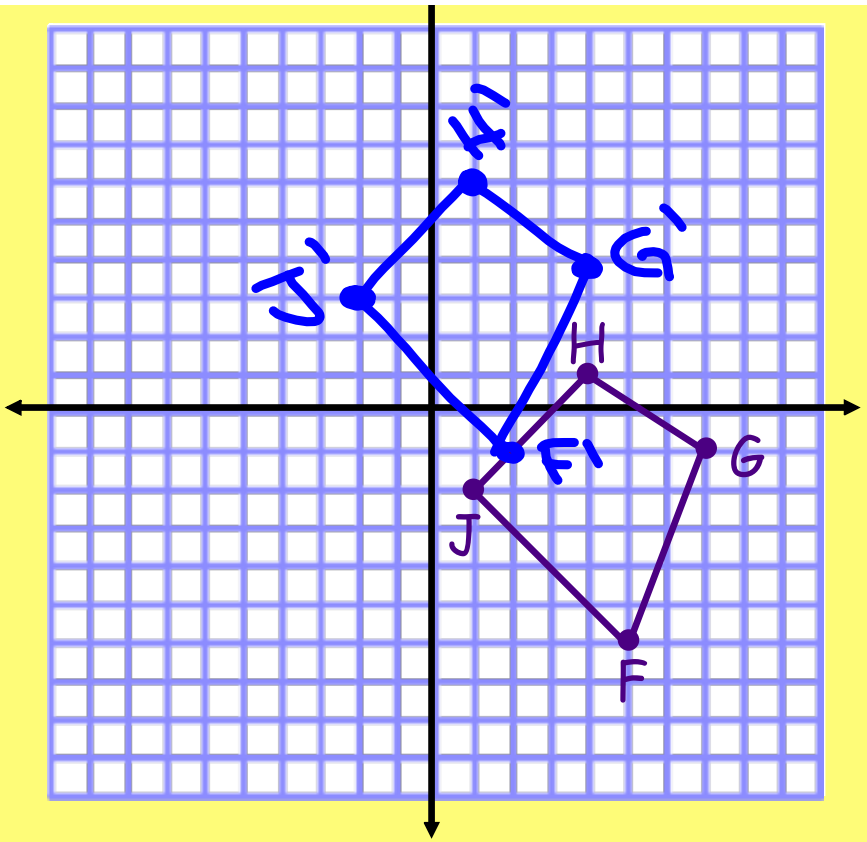
Graphing a Translation

Transform each point of the figure according to the rule.

$$T_{<-3,5>}(\text{FGHJ})$$

left 3

up 5



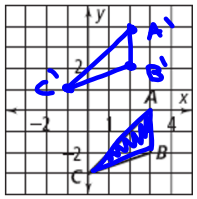
Assignment:

Concept 21 Worksheet

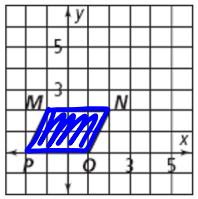
TRANSLATIONS

Graph the image of each figure under the given translation.

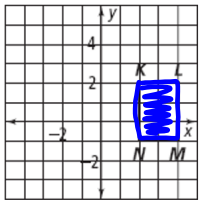
1. $T_{\langle -1, 4\rangle}$ (ΔABC)



2. $T_{\langle 3, 3\rangle}$ $(MNOP)$

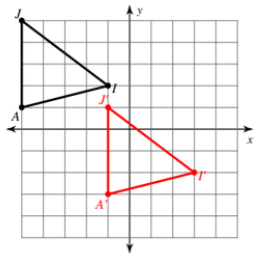


3. $T_{\langle -5, 1\rangle}$ $(KLMN)$

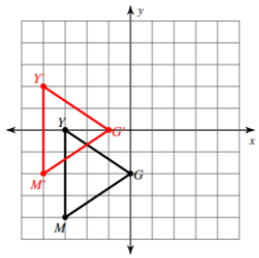


The dashed-line figure is a translation image of the solid-line figure. Write a rule to describe each translation.

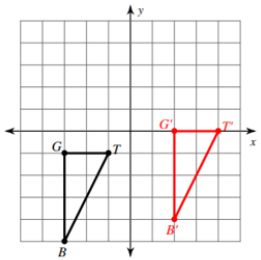
4.



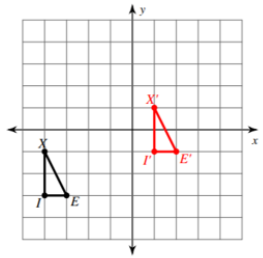
5.



6.



7.



8. Sketch a transformation that is a rigid motion.

9. Sketch a transformation that is **not** a rigid motion.