

$$Y = \frac{m}{\downarrow} X + \frac{b}{\downarrow}$$

- slope
- rate of change
- growth

- figure 0
- y-intercept
- initial value

D istribute

C ombine Like Terms

M ove the variable

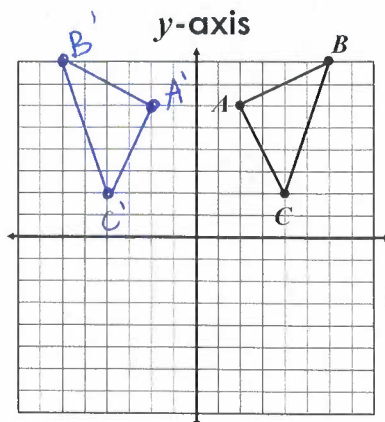
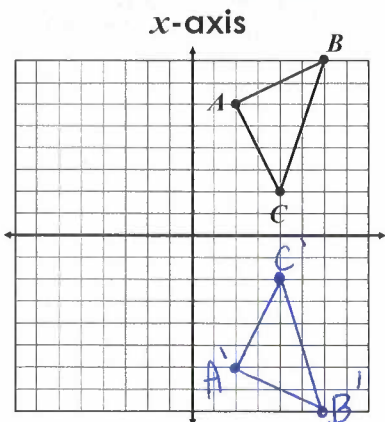
U ndo (+/-)

D ivide (by the # next to the variable)

TRANSFORMATIONS

REFLECTION

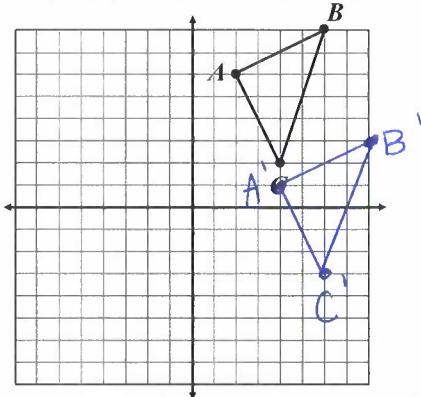
flip



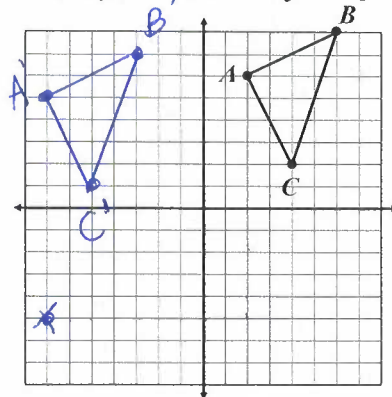
TRANSLATION

slide

$$(x, y) \rightarrow (x + 2, y - 5)$$



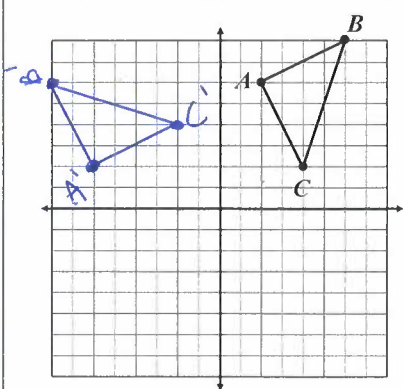
$$(x, y) \rightarrow (x - 9, y - 1)$$



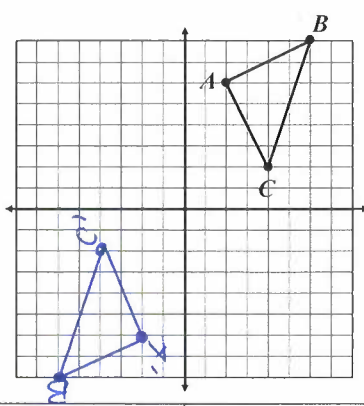
ROTATION

TURN

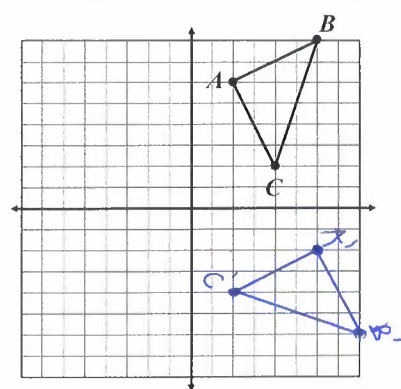
90° counterclockwise



180°



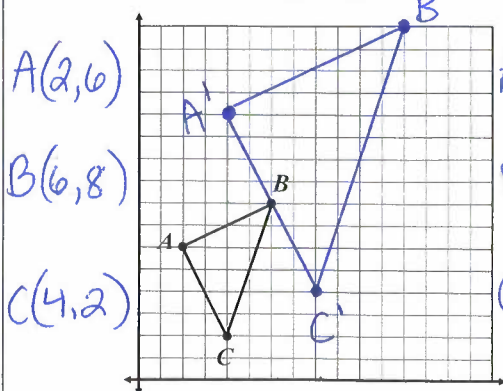
270° counterclockwise



DILATION

shrink or stretch

$k = 2$



$A'(4, 12)$

$B'(12, 16)$

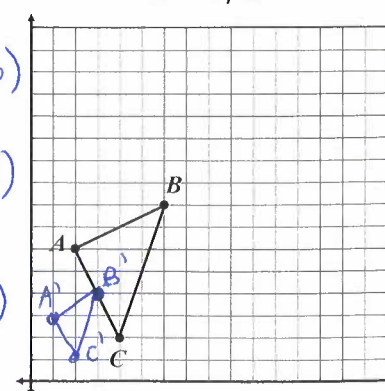
$C'(8, 4)$

$A(2, 6)$

$B(6, 8)$

$C(4, 2)$

$k = 1/2$



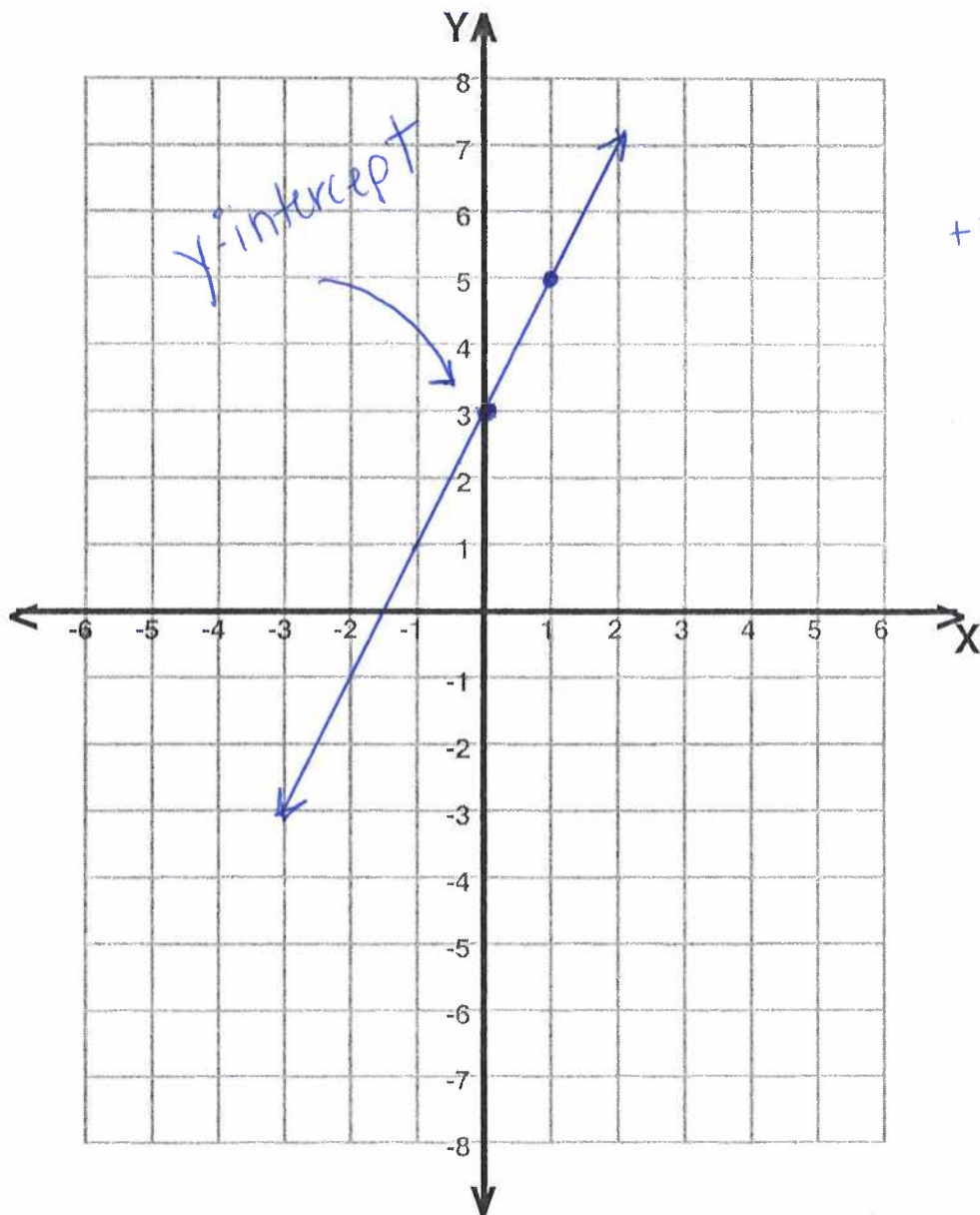
$A'(1, 3)$

$B'(3, 4)$

$C'(2, 1)$

Writing Equations from Graphs

- ① Put the points in a table
- ② $m = \frac{Y}{X}$
- ③ $b = y\text{-intercept}$



$$+1 \left(\begin{array}{c|c} X & Y \\ \hline 0 & 3 \\ 1 & 5 \end{array} \right) + 2$$

$$\frac{Y}{X} = \frac{2}{1} = 2$$

$$y = \underset{\substack{\downarrow \\ m}}{2}x + \underset{\substack{\downarrow \\ b}}{3}$$

Number of Solutions

examples

one: $5x + 3 = 10x - 4$

different growth

none: $7x + 4 = 7x - 9$

different "b" value
same growth

infinite: $-3x + 10 = 10 + (-3x)$

same "b"
same growth

