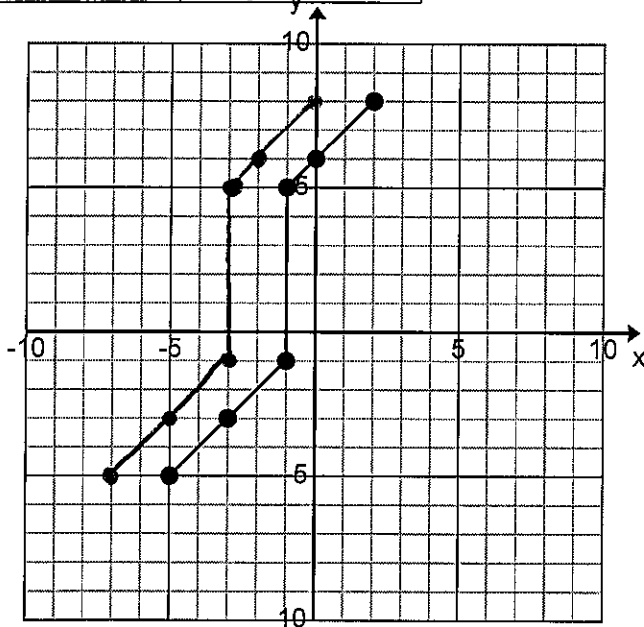


For each graph apply the following transformation and graph the function on the same grid.

1. Translate the graph 2 units to the left

Original Point	Image Point
$(-5, -5)$	$(-7, -5)$
$(-3, -3)$	$(-5, -3)$
$(-1, -1)$	$(-3, -1)$
$(-1, 5)$	$(-3, 5)$
$(0, 6)$	$(-2, 6)$
$(2, 8)$	$(0, 8)$

"Horizontal translation."



For the new graph state the

Domain:  $\{x \mid -7 \leq x \leq 0, x \in \mathbb{R}\}$   $[-7, 0]$

Range:  $\{y \mid -5 \leq y \leq 8, y \in \mathbb{R}\}$   $[-5, 8]$

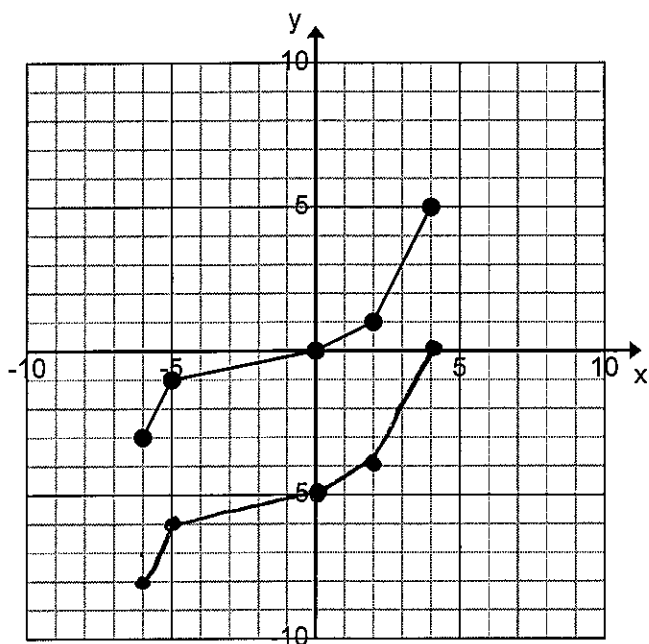
X-intercept  $(-3, 0)$

Y-intercept  $(0, 8)$

2. Translate the graph 5 units down

Original Point	Image Point
$(-6, -3)$	$(-6, -8)$
$(-5, -1)$	$(-5, -6)$
$(0, 0)$	$(0, -5)$
$(2, 1)$	$(2, -4)$
$(4, 5)$	$(4, 0)$

"Vertical translation."



For the new graph state the

Domain:  $\{x \mid -6 \leq x \leq 4, x \in \mathbb{R}\}$   $[-6, 4]$

Range:  $\{y \mid -8 \leq y \leq 0, y \in \mathbb{R}\}$   $[-8, 0]$

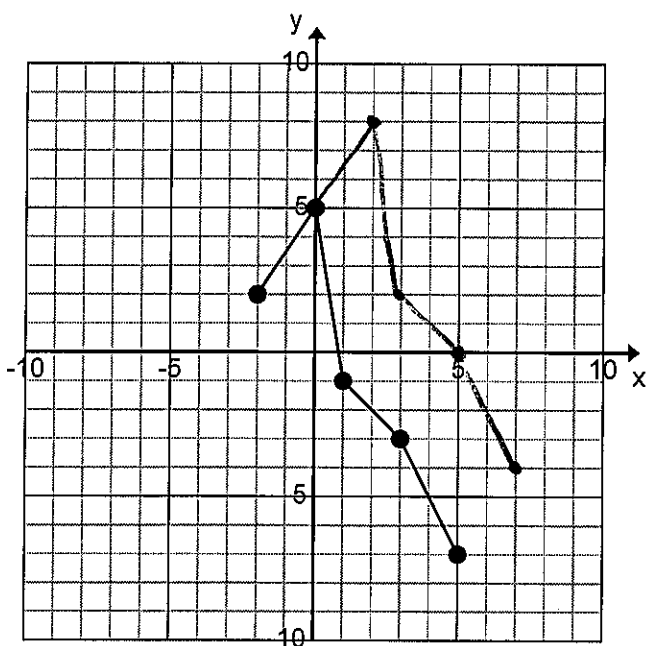
X-intercept:  $(4, 0)$

Y-intercept:  $(0, -5)$

3. Translate the graph 2 units right and 3 units up

Original Point	Image Point
$(-2, 2)$	$(0, 5)$
$(0, 5)$	$(2, 8)$
$(1, -1)$	$(3, 2)$
$(3, -3)$	$(5, 0)$
$(5, 7)$	$(7, -4)$

"Vertical and horizontal translations"



For the new graph state the

Domain:  $\{x \mid 0 \leq x \leq 7, x \in \mathbb{R}\} = [0, 7]$

Range:  $\{y \mid -4 \leq y \leq 8, y \in \mathbb{R}\} = [-4, 8]$

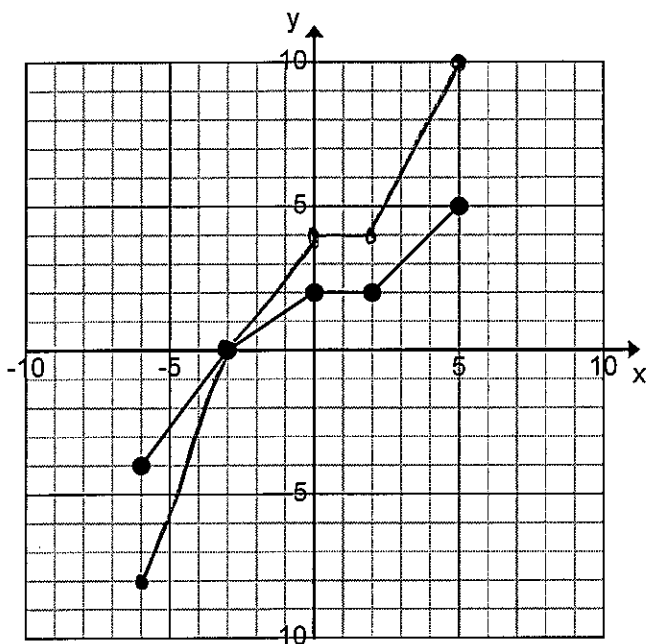
X-intercept:  $(5, 0)$

Y-intercept:  $(0, 5)$

4. Leaving the x-value the same, multiply the y-value of each point by 2.

Original Point	Image Point
(5,5)	(5,10)
(2,2)	(2,4)
(0,2)	(0,4)
(-3,0)	(-3,0)
(-6,-4)	(-6,-8)

"Vertical stretch by a factor of 2."



For the new graph state the

Domain:

$$\{x \mid -6 \leq x \leq 5, x \in \mathbb{R}\} \quad [-6, 5]$$

Range:

$$\{y \mid -8 \leq y \leq 10, y \in \mathbb{R}\} \quad [-8, 10]$$

X-intercept:

$$(-3, 0)$$

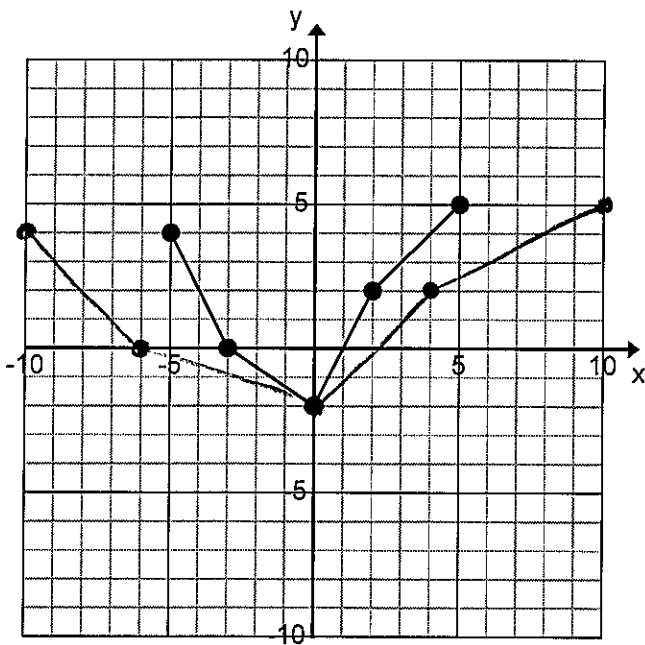
Y-intercept:

$$(0, 4)$$

5. Leaving the y-value the same, multiply the x-value of each point by 2.

Original Point	Image Point
$(-5, 4)$	$(-10, 4)$
$(-3, 0)$	$(-6, 0)$
$(0, -2)$	$(0, -2)$
$(2, 2)$	$(4, 2)$
$(5, 5)$	$(10, 5)$

"Horizontal stretch by a factor of 2."



For the new graph state the

Domain:  $\{x \mid -10 \leq x \leq 10, x \in \mathbb{R}\}$  :  $[-10, 10]$

Range:  $\{y \mid -2 \leq y \leq 5, y \in \mathbb{R}\}$  :  $[-2, 5]$

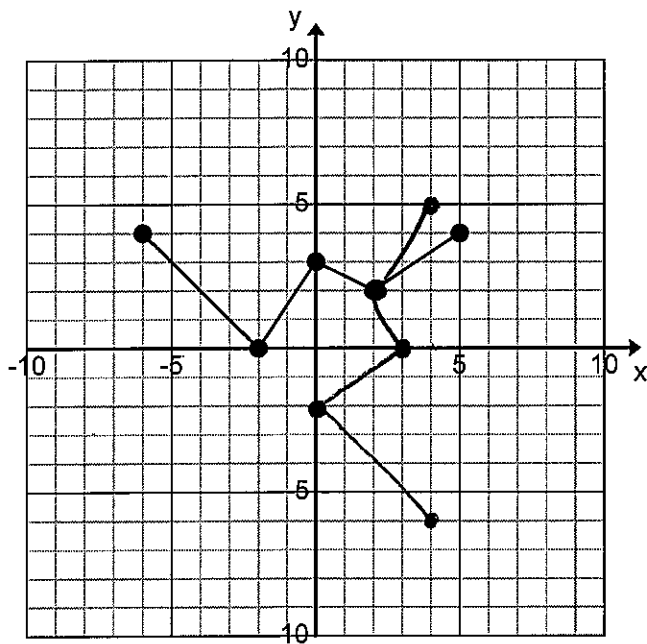
X-intercept:  $(-6, 0)$

Y-intercept:  $(0, -2)$

6. Switch the x and y values for each point. Example (2, -3) becomes (-3, 2)

Original Point	Image Point
$(-6, 4)$	$(4, -6)$
$(-2, 0)$	$(0, -2)$
$(0, 3)$	$(3, 0)$
$(2, 2)$	$(2, 2)$
$(5, 4)$	$(4, 5)$

"Inverse"



For the new graph state the

Domain:  $\{x \mid 0 \leq x \leq 4, x \in \mathbb{R}\}$   $[0, 4]$

Range:  $\{y \mid -6 \leq y \leq 5, y \in \mathbb{R}\}$   $[-6, 5]$

X-intercept:  $(3, 0)$

Y-intercept:  $(0, -2)$