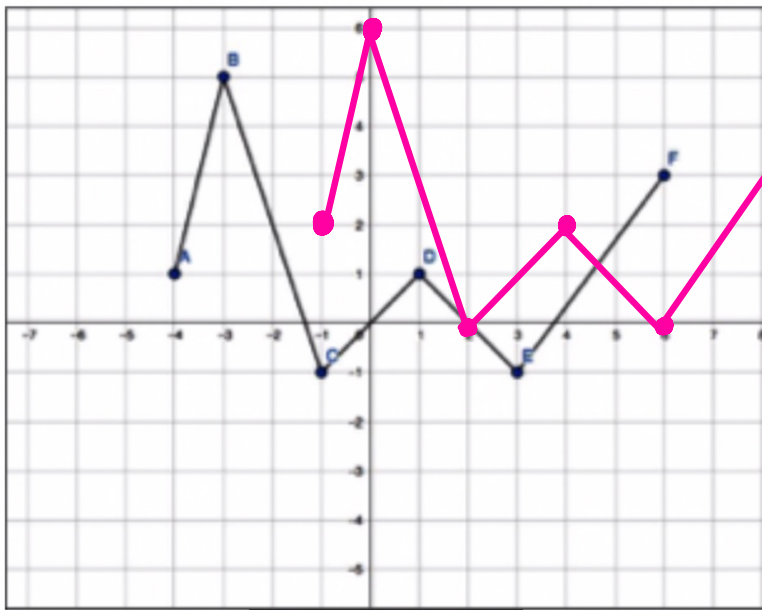
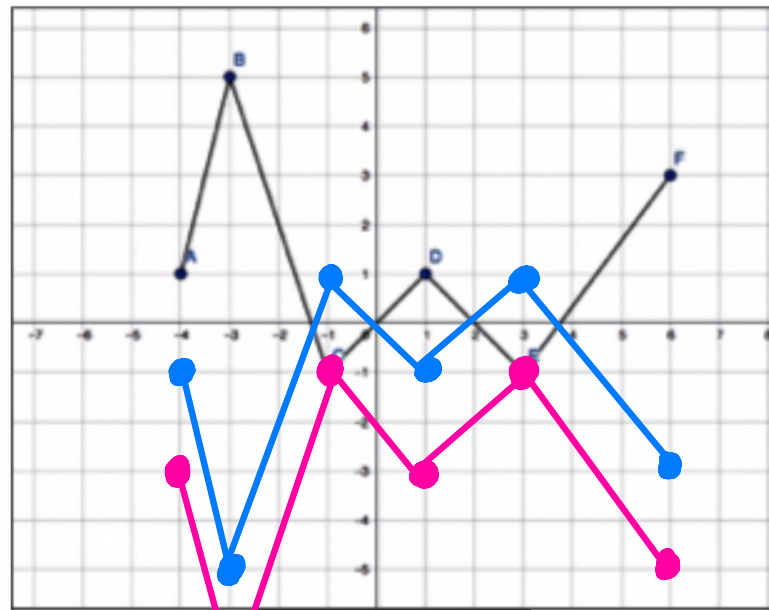


Given the original graphs of $f(x)$ below, perform the transformations in a DIFFERENT COLOR



$$f(x-3)+1$$



$$-f(x)-2$$

parent \rightarrow given
 $f(x)$

multiplier \rightarrow none
 $f(x)$

shift \rightarrow right 3, up 1
 $f(x-3)+1$

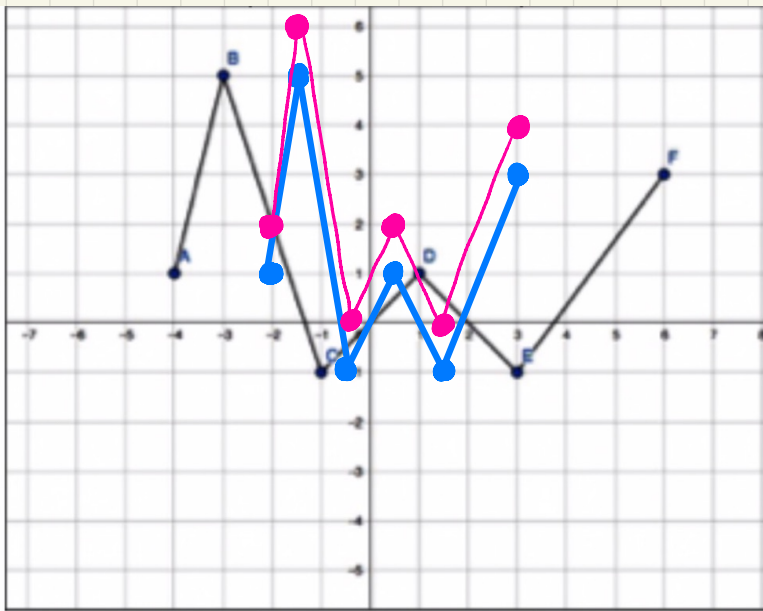
parent \rightarrow given
 $f(x)$

multiplier $\rightarrow -1$
(mult all "y" values by -1)

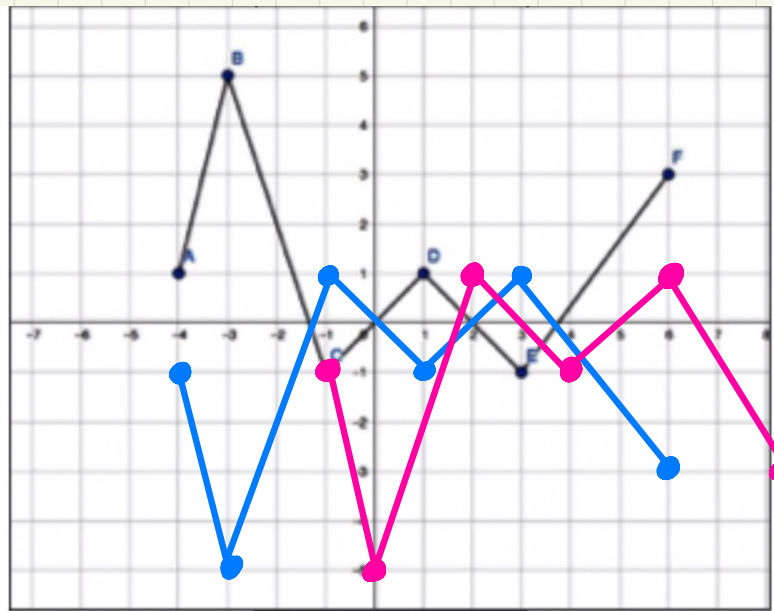
$-1f(x)$

shift \rightarrow down 2

$-f(x)-2$



$$f(2x)+1$$



$$-f(x-3)$$

parent \rightarrow given
 $f(x)$

multiplier $\rightarrow 2$
 (divide all "x" values by 2)

$$f(2x)$$

shift \rightarrow up 1

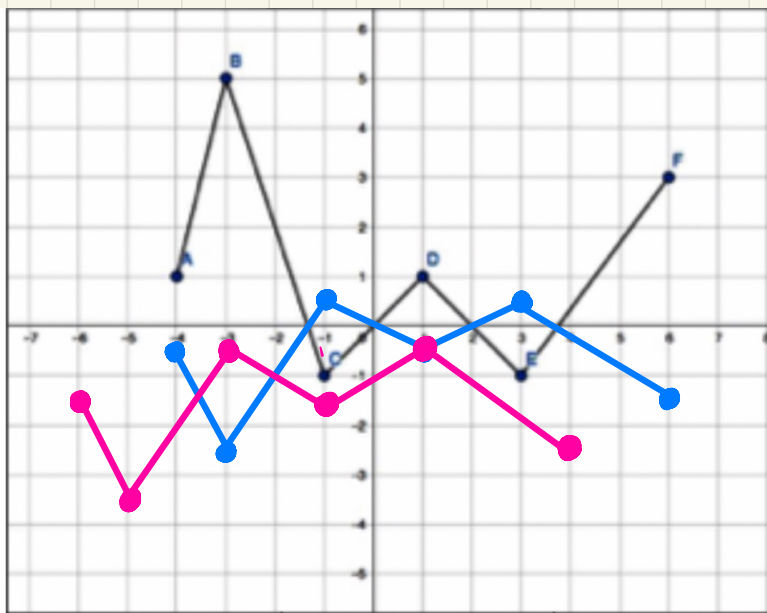
$$f(2x)+1$$

parent \rightarrow given
 $f(x)$

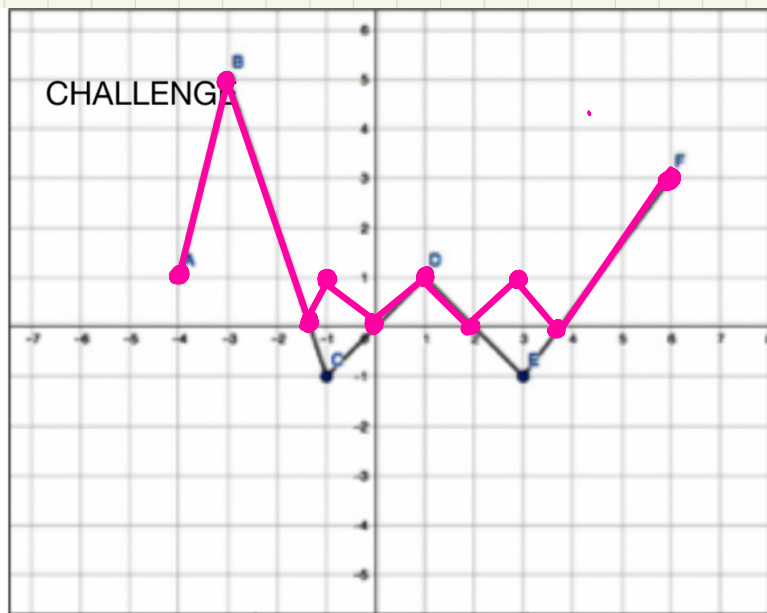
multiplier $\rightarrow -1$
 (mult all "y" values by -1)

$$-1f(x)$$

shift \rightarrow right 3



$$-\frac{1}{2}f(x+2)-1$$



$$|f(x)|$$

parent \rightarrow given

$$f(x)$$

multiplier $\rightarrow -\frac{1}{2}$

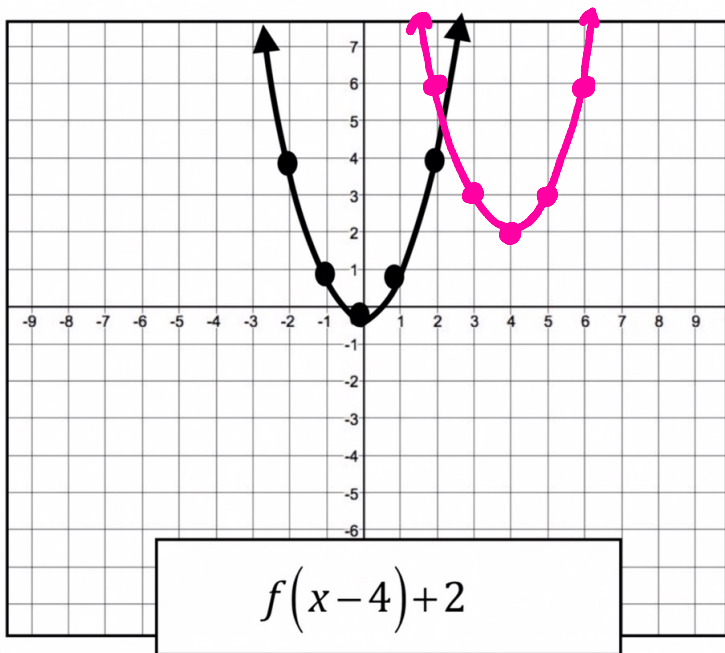
(multiply all "y" values by $-\frac{1}{2}$)

$$-\frac{1}{2}f(x)$$

Shift \rightarrow Left 2, down 1

$$-\frac{1}{2}f(x+2)-1$$

The absolute values means there cannot be any negative "y" - values.

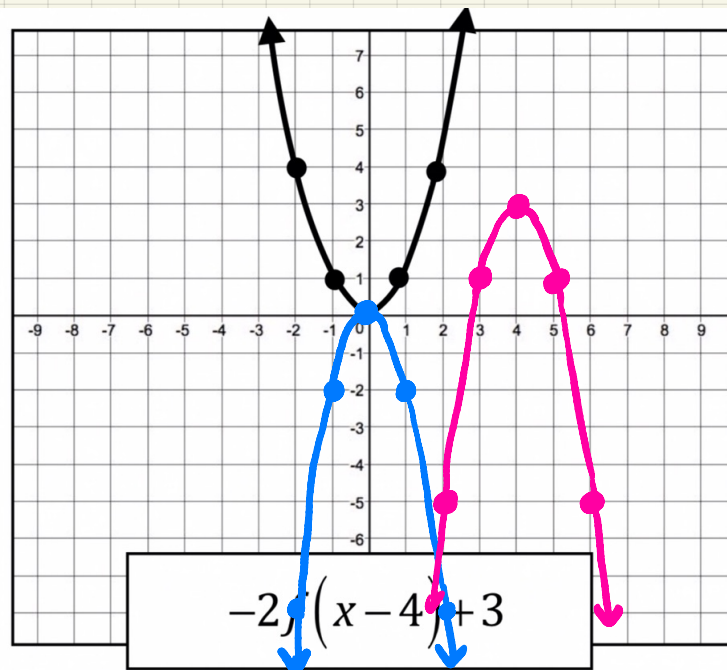


parent \rightarrow given
 $f(x)$

multiplier \rightarrow none

shift \rightarrow right 4, up 2

$$f(x-4)+2$$



parent \rightarrow given
 $f(x)$

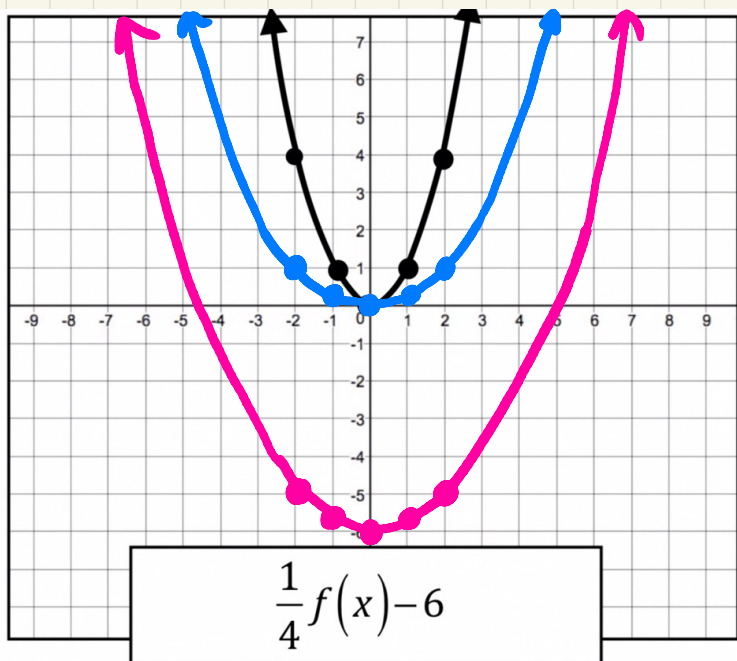
multiplier $\rightarrow -2$

(mult all "y" values by -2)

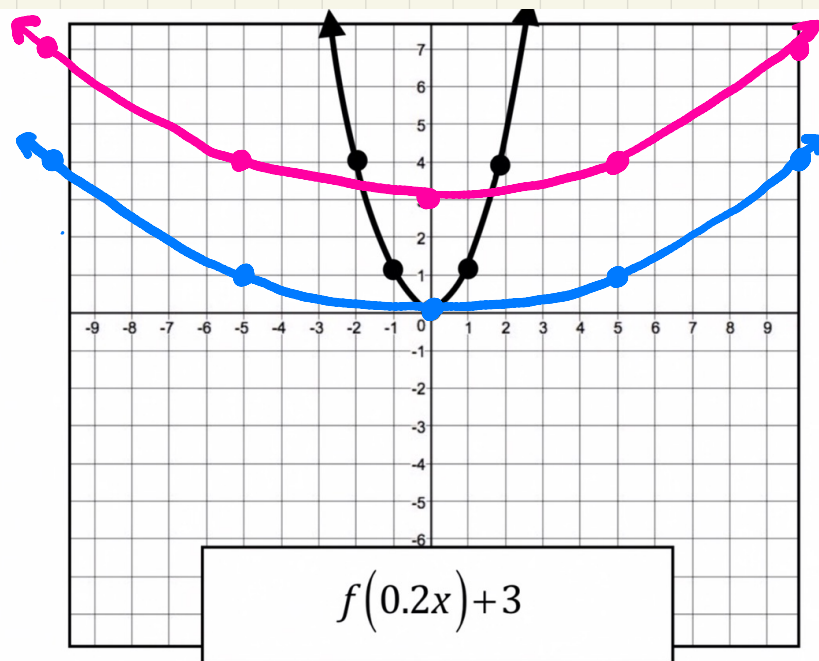
$$-2f(x)$$

shift \rightarrow right 4, up 3

$$-2f(x-4)+3$$



$$\frac{1}{4}f(x) - 6$$



$$f(0.2x) + 3$$

parent \rightarrow given
 $f(x)$

multiplier $\rightarrow \frac{1}{4}$
 (multiply all "y" values by $\frac{1}{4}$)

$$\frac{1}{4}f(x)$$

shift \rightarrow down 6

$$\frac{1}{4}f(x) - 6$$

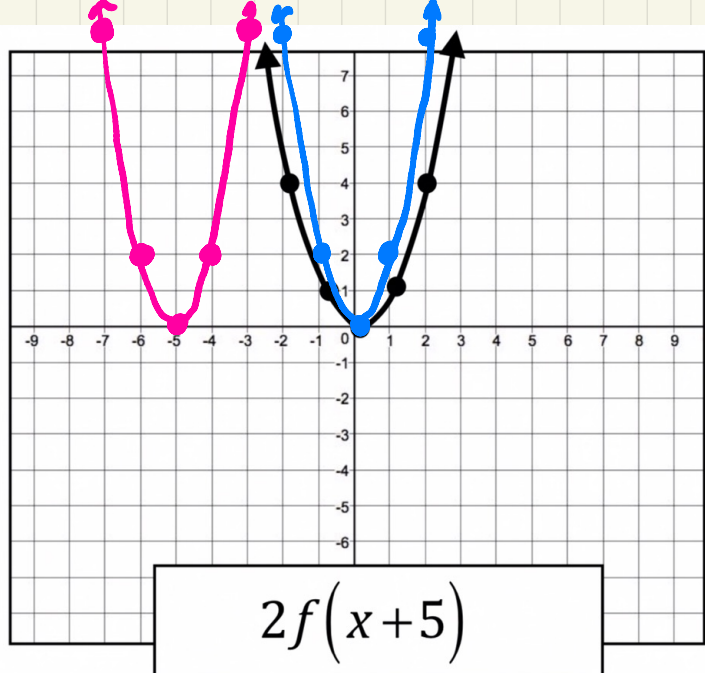
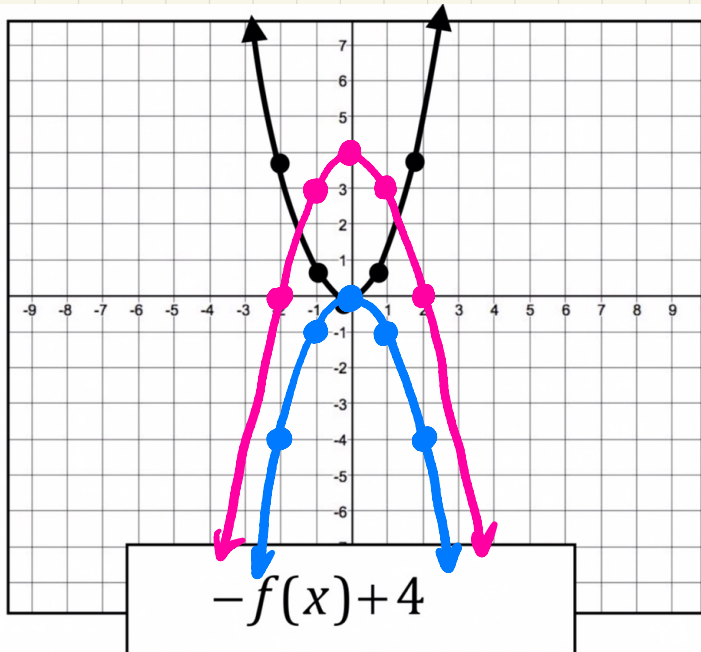
parent \rightarrow given
 $f(x)$

multiplier $\rightarrow 0.2$
 (divide all "x" vals by 0.2)

$$f(0.2x)$$

shift \rightarrow up 3

$$f(0.2x) + 3$$



parent \rightarrow given
 $f(x)$

multiplier $\rightarrow -1$
 (multiply all "y" vals by -1)

$$-1f(x)$$

shift \rightarrow up 4

$$-f(x) + 4$$

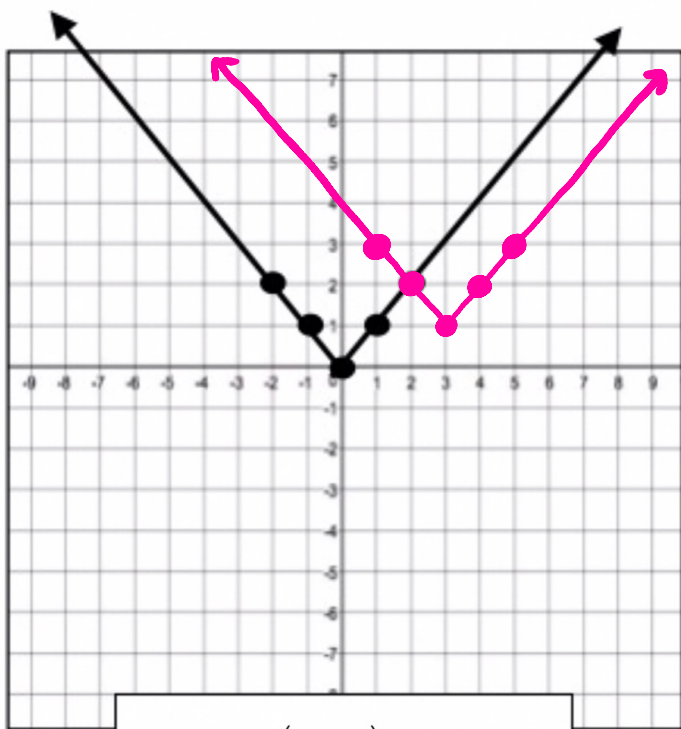
parent \rightarrow given
 $f(x)$

multiplier $\rightarrow 2$
 (multiply all "y" vals by 2)

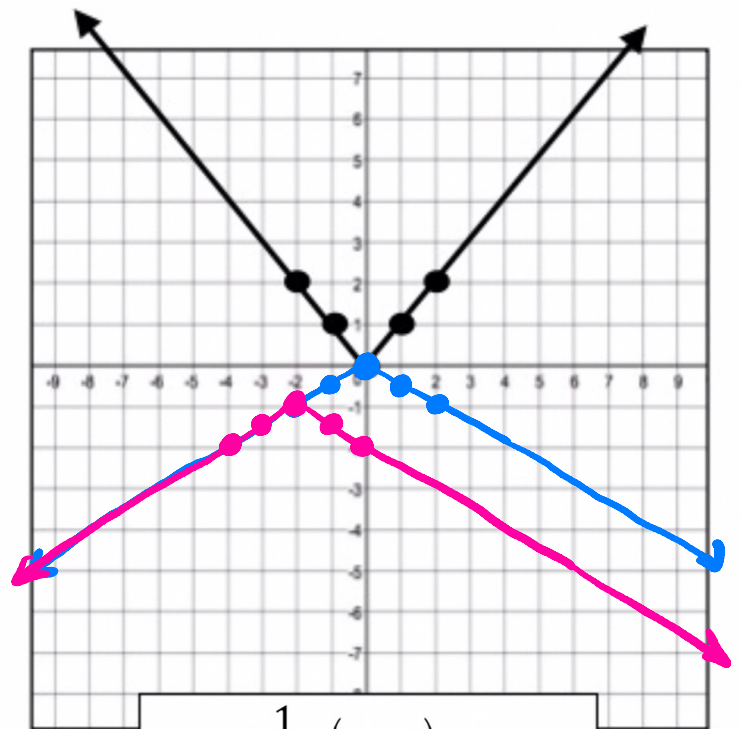
$$2f(x)$$

shift \rightarrow left 5

$$2f(x+5)$$



$$f(x-3)+1$$



$$-\frac{1}{2}f(x+2)-1$$

parent \rightarrow given
 $f(x)$

multiplier \rightarrow none

shift \rightarrow right 3, up 1

$$f(x-3)+1$$

parent \rightarrow given
 $f(x)$

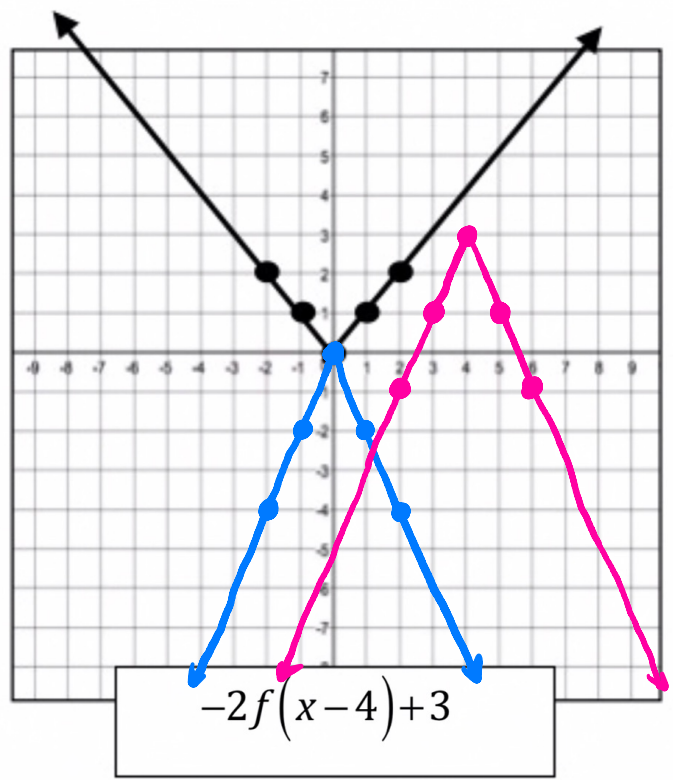
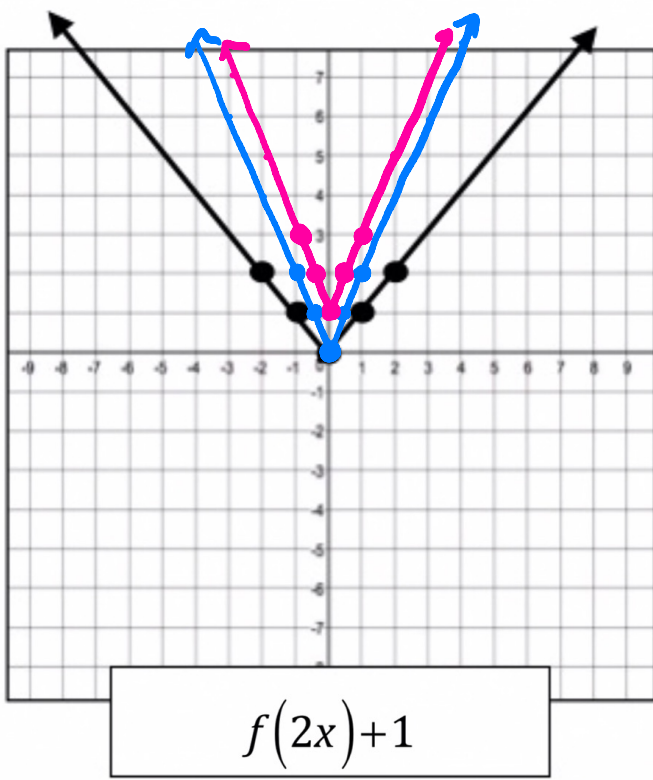
multiplier $\rightarrow -\frac{1}{2}$

(multiply all "y" vals by $-\frac{1}{2}$)

$$-\frac{1}{2}f(x)$$

shift \rightarrow left 2, down 1

$$-\frac{1}{2}f(x+2)-1$$



parent \rightarrow given
 $f(x)$

multiplier $\rightarrow 2$
 (divide all "x" vals by 2)

$f(2x)$

shift \rightarrow up 1

$f(2x)+1$

parent \rightarrow given
 $f(x)$

multiplier $\rightarrow -2$
 (multiply all "y" vals by -2)

$-2f(x)$

shift \rightarrow right 4, up 3

$-2f(x-4)+3$