

$$x(m+5) + y(m-2) = z(m-6)$$

Solve for m

$$\underline{xm} + 5x + \underline{ym} - 2y = \underline{zm} - 6z$$

$$\underline{xm + ym - zm} = 2y - 5x - 6z$$

$$\underbrace{(x+y-z)}_{\text{a number}} m = 2y - 5x - 6z$$

$$m = \frac{2y - 5x - 6z}{x + y - z}$$

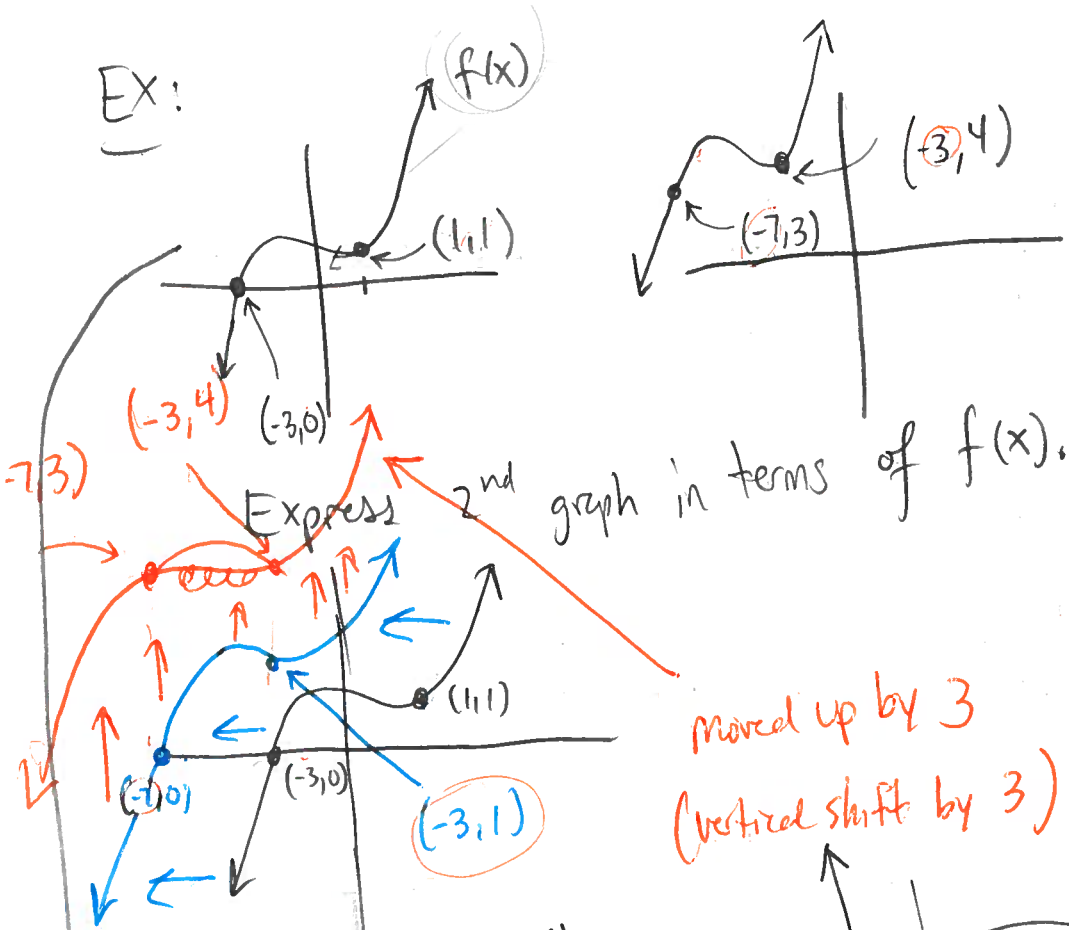
$$2m + 3m = 4m + 1 \quad \textcircled{1}$$

$$5m = 4m + 1$$
$$m = 1$$

$$(2+3)m = 4m + 1$$

$$5m = 12$$

EX:



Moved up by 3
(vertical shift by 3)

move left by 4
(horiz shift left by 4)

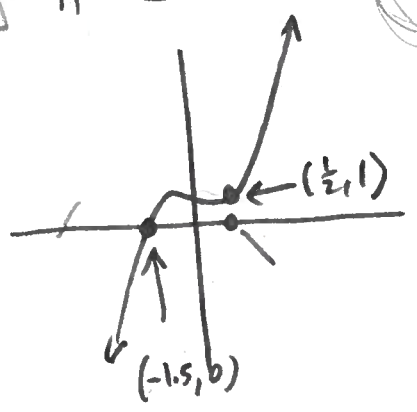
$$f(x+4) + 3$$

horiz shift left by 4

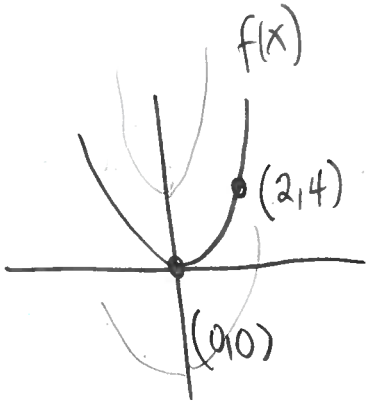
vert shift up by 3

$f(x+4)$

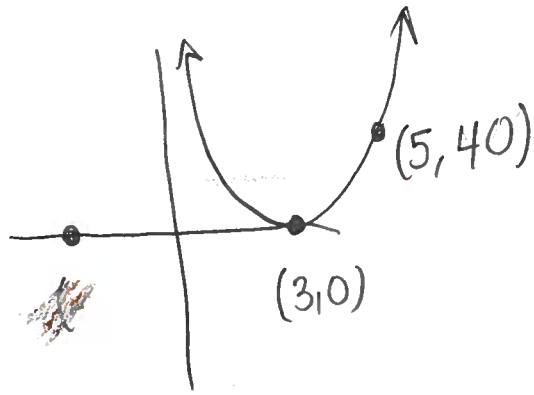
if I look at $f(2x)$
 $c=2$



Ex:



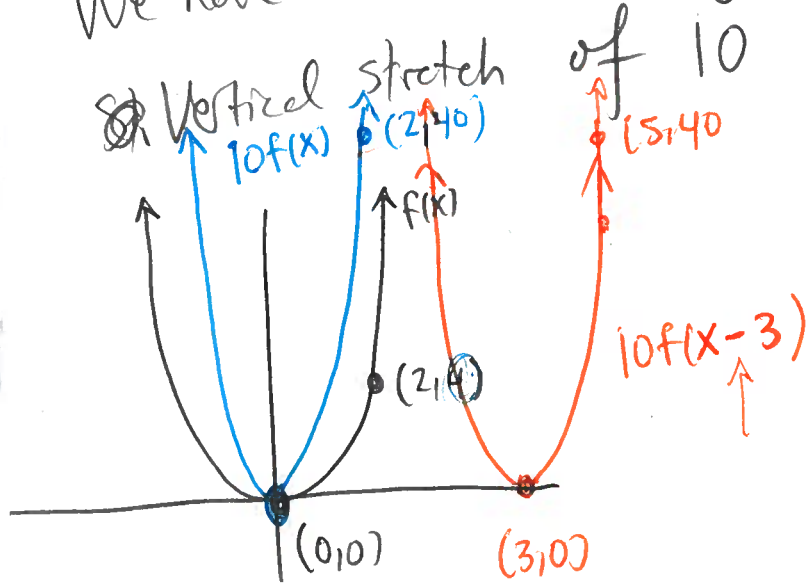
old



new

Express new graph in terms of f(x)

Soln: We have shift right by 3



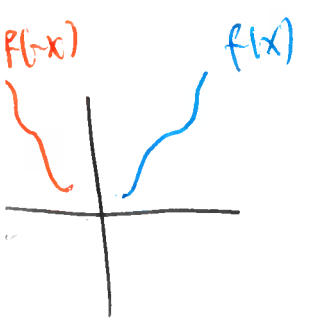
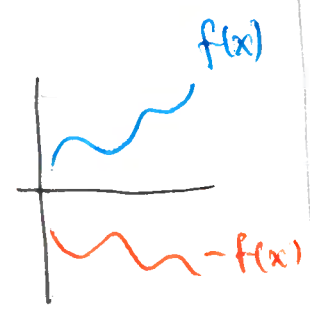
Ex: Sometimes a "vertical stretch" can be interpreted as a "horizontal compress"

< see computer >

TRANSFORMATIONS $(C > 0)$ \leftarrow C is a positive constant (2)

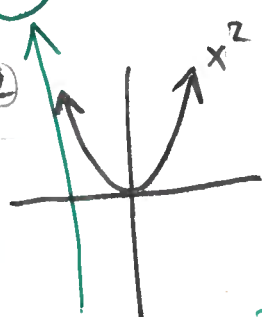
Functional	Name	Action
$f(x) \pm C$	vertical shift	adds/subtracts to y-values
$f(x \pm C)$	horizontal shift	subtracts/adds to x-values
$Cf(x)$	vertical stretch ($C > 1$) compress ($0 << C < 1$)	multiplies y-values by C
$f(Cx)$	horizontal stretch ($0 << C < 1$) compress ($C > 1$)	divides x-values by C
$-f(x)$	vertical reflect	mirror image across x-axis (also mult y-values by -1)
$f(-x)$	horizontal refl	mirror image across y-axis (divides x-values by -1)

$f(x/2)$
subtracts x-values by 2



Ex: What is $-(x+2)^2 - 1$?

Soln: base function: $f(x) = x^2$



vert. refl

$f(x+2) = (x+2)^2$
h. shift left by 2

$f(x) - 1 = x^2 - 1$
 $f(x+2) - 1 = (x+2)^2 - 1$
v. shift down by 1

Soln:

FRIDAY