

1.3 Combining Transformations

Translations \Rightarrow slides

Reflections \Rightarrow Flips

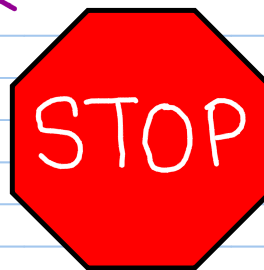
Expansions/
Compressions \Rightarrow Stretches

USE "SFS"

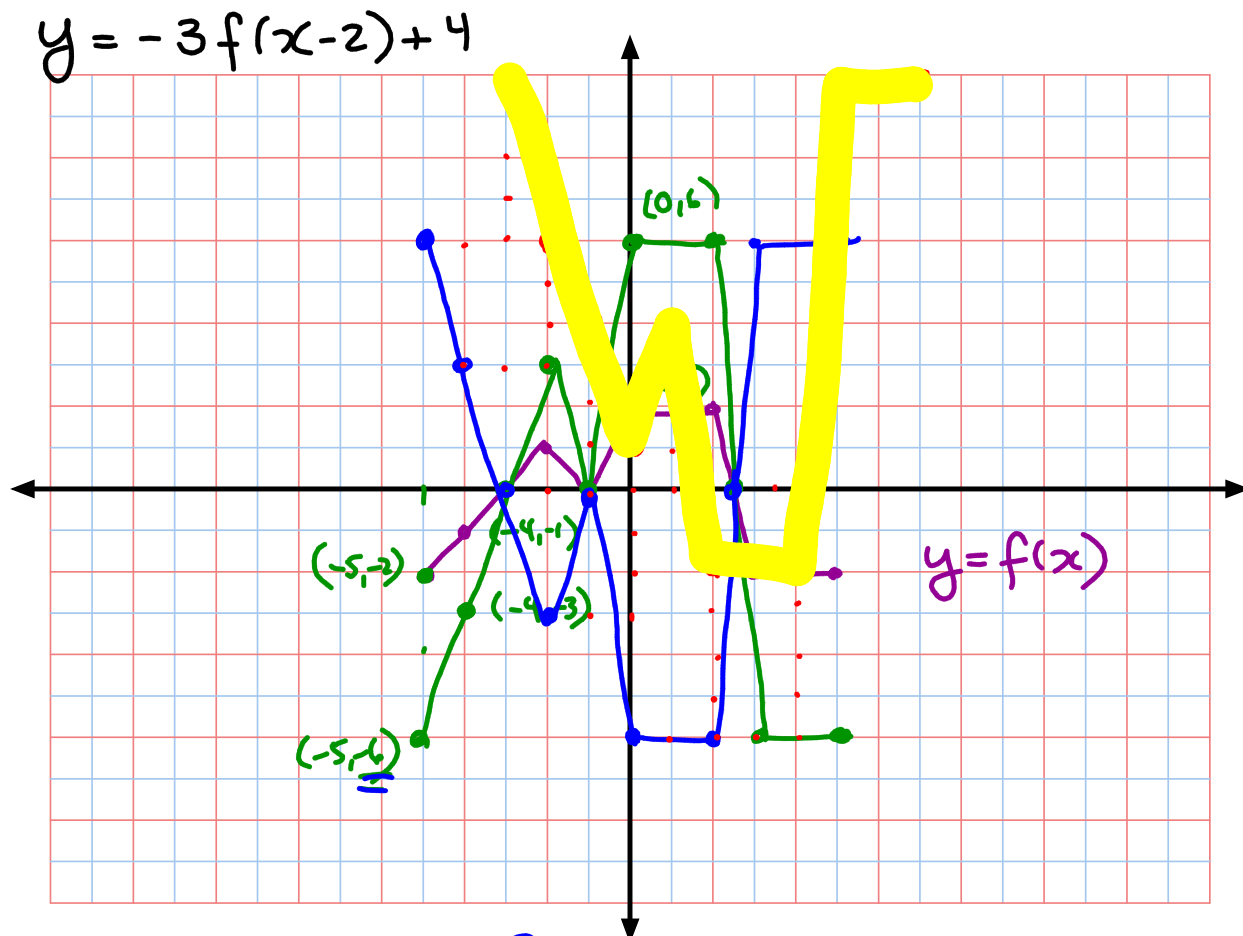
"Stretch-Flip-Slide"

When you are given a combination of transformations, the inside (x) part must **ALWAYS** be in factored form.

$$y = 3f(\underline{2x+4}) - 3$$



$$y = 3f(2(x+2)) - 3$$



$y = -3[f(x-2)] + 4$

vertical flip across x-axis (2)
 mult y-values by 3 (1) ✓
 right 2 (3)
 up 4 (4)

$$y = \frac{1}{2} f(\underline{-1}(x - \underline{2})) + 7$$

$$y = \frac{1}{2} f(\underline{-x + 2}) + 7$$



$$y = \frac{1}{2} f(3x - 7) + 2$$

$$\frac{1}{2} f\left(3\left(x - \frac{7}{3}\right)\right) + 2$$

omit c4

Pg 15 #17 $y = x^2$ zeroes at 7 and 1

$(0,0)$ $y = (x-7)(x-1)$

$y = x^2 - 8x + 7$

Pg 31 #14 $f(x) = (x+4)(x-3)$ $(-4,0)$ and $(3,0)$

(a) $y = 4(f(x))$ $(-4,0)$ and $(3,0)$

(b) $y = f(-x)$ $(4,0)$ and $(-3,0)$

$y = (x^2 - 8x) + 7$

$y = (x^2 - 8x + 16) - 16 + 7$

$y = (x-4)(x-4) - 9$

$y = (x-4)^2 - 9$

vertex $(4, -9)$
 $\rightarrow 4 \downarrow 9$