Lesson 21 Translations of Functions
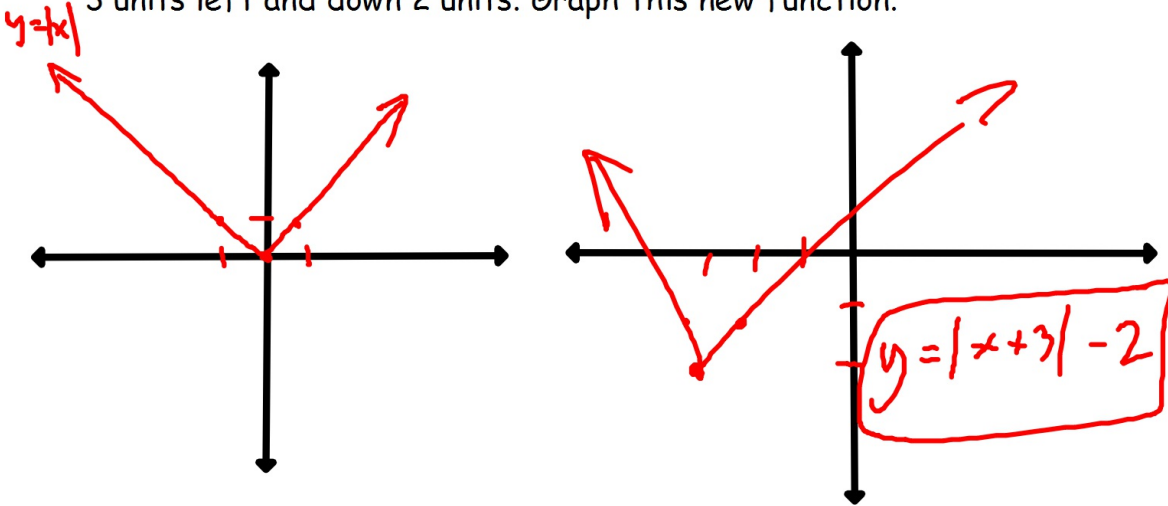
$y = x^2 + 2$ ↑2 $y = x - 4$

○ If we add a constant to an equation the function is translated Vertically

○ If a constant is added and grouped with "x" graph is shifted Horizontally

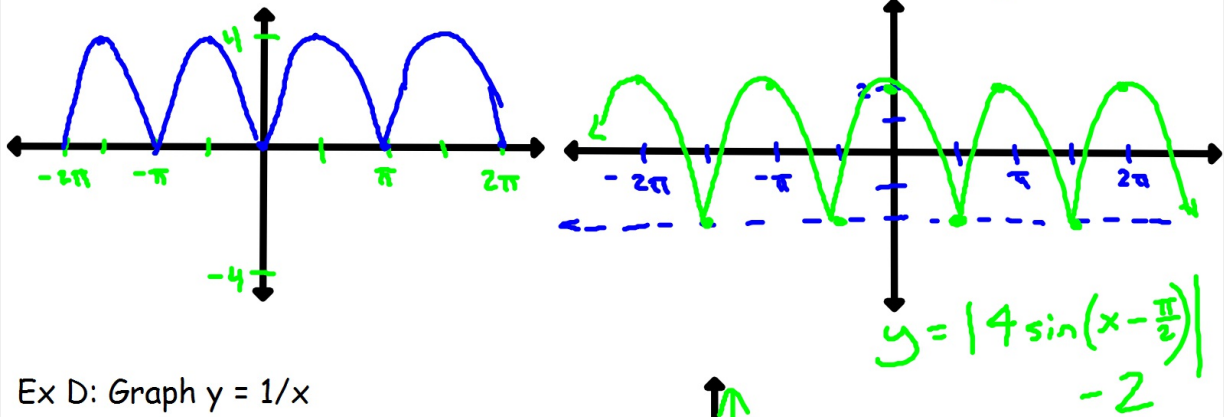   ex.   (x + 2) : shift left 2   (x - 2) : shift right 2

Ex. Graph the equation: y = | x |. Then change the eqution to shift the graph 3 units left and down 2 units. Graph this new function.
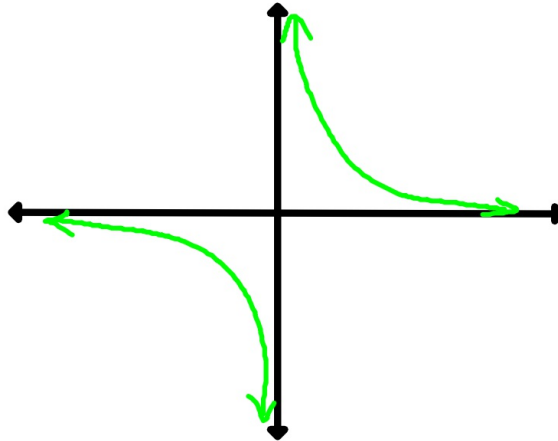
$y = |x|$

$y = |x + 3| - 2$

Ex B. Graph the function y = ½x² . Then shift the curve 3 units to the right and up 2 units. Graph the new function.

$y = \frac{1}{2}(x - 3)^2 + 2$
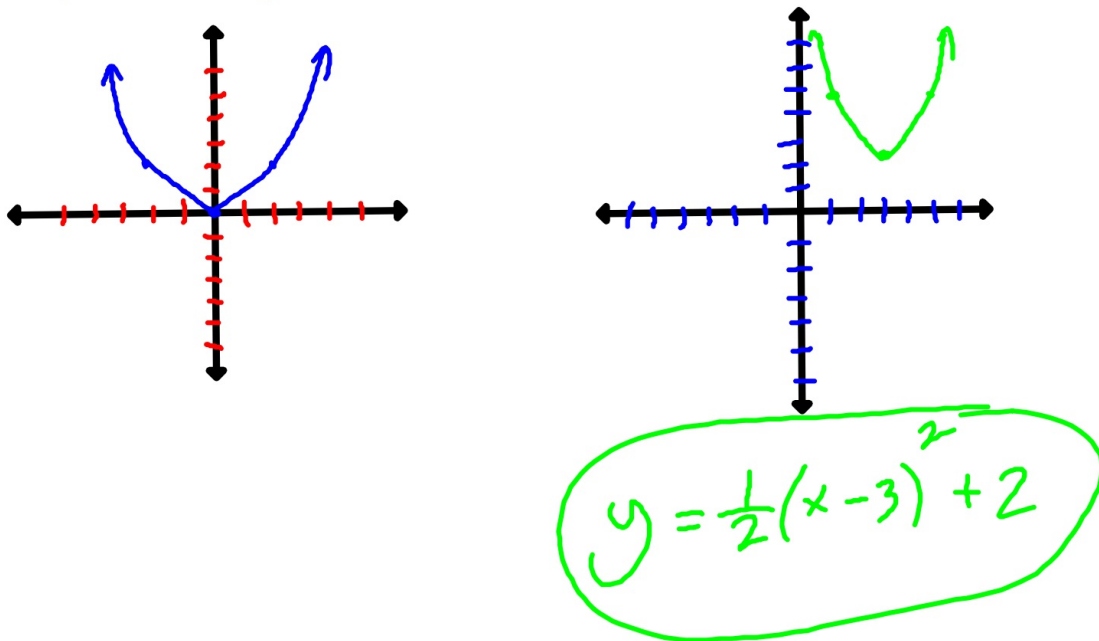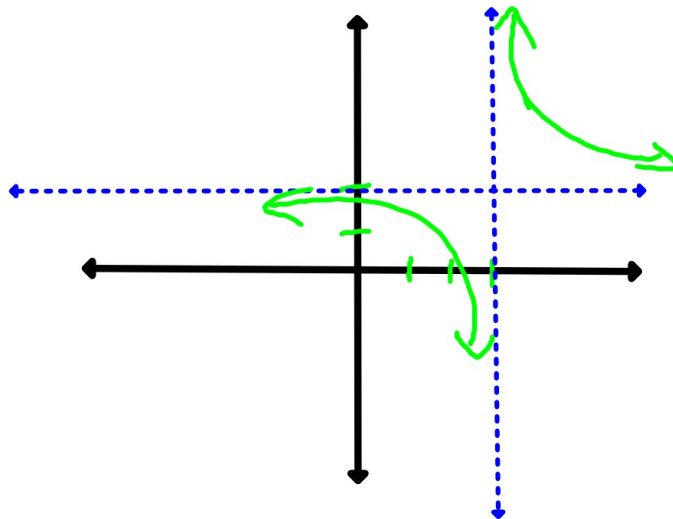
Ex C: Given y = | 4 sin x |, change the function to shift down 2 and π/2 right.

$$y = |4 \sin(x - \tfrac{\pi}{2})|$$
$$-2$$

Ex D: Graph y = 1/x

Ex E: Graph y = $\dfrac{1}{x - 3}$ + 2

Ex F: Graph (a) $y = -1/x$ (b) $y = \dfrac{1}{3-x} = \dfrac{-1}{x-3}$ (c) $y = 1/x^2$

(a) → 3 right

(a)

(b)

"Volcano"