

$$\begin{aligned}x - 3y &= -5 \\ 4x - 2y &= 6\end{aligned}$$

$$\begin{array}{r} -4R1 \quad -4(x - 3y = -5) \\ -4R1 \quad -4x + 12y = 20 \\ R2 \quad 4x - 2y = 6 \\ \hline 10y = 26 \end{array}$$

$$\frac{\quad}{10} \quad \frac{\quad}{10}$$

$$\frac{10y}{10} = \frac{26}{10}$$

$$y = \frac{26}{10} = \boxed{\frac{13}{5} = y}$$

$$x - 3y = -5$$

$$x - 3\left(\frac{13}{5}\right) = -5$$

$$x - \frac{39}{5} = -5$$

$$x = \frac{39}{5} - 5 \cdot \frac{5}{5}$$

$$= \frac{39 - 25}{5} = \boxed{\frac{14}{5} = x}$$

On Quiz Solutions  
for the 3x3 system,  
Breadcrumbs: 3 systems

1<sup>st</sup>: See quiz question  $(x, y) \in \left\{ \left( \frac{14}{5}, \frac{13}{5} \right) \right\}$   
Unique Solution

2<sup>nd</sup>:

$$x - y - 3z = 7$$

$$y + 2z = -5$$

$$-3y - 7z = 19$$

After eliminating  $x$   
from  $R2$  &  $R3$

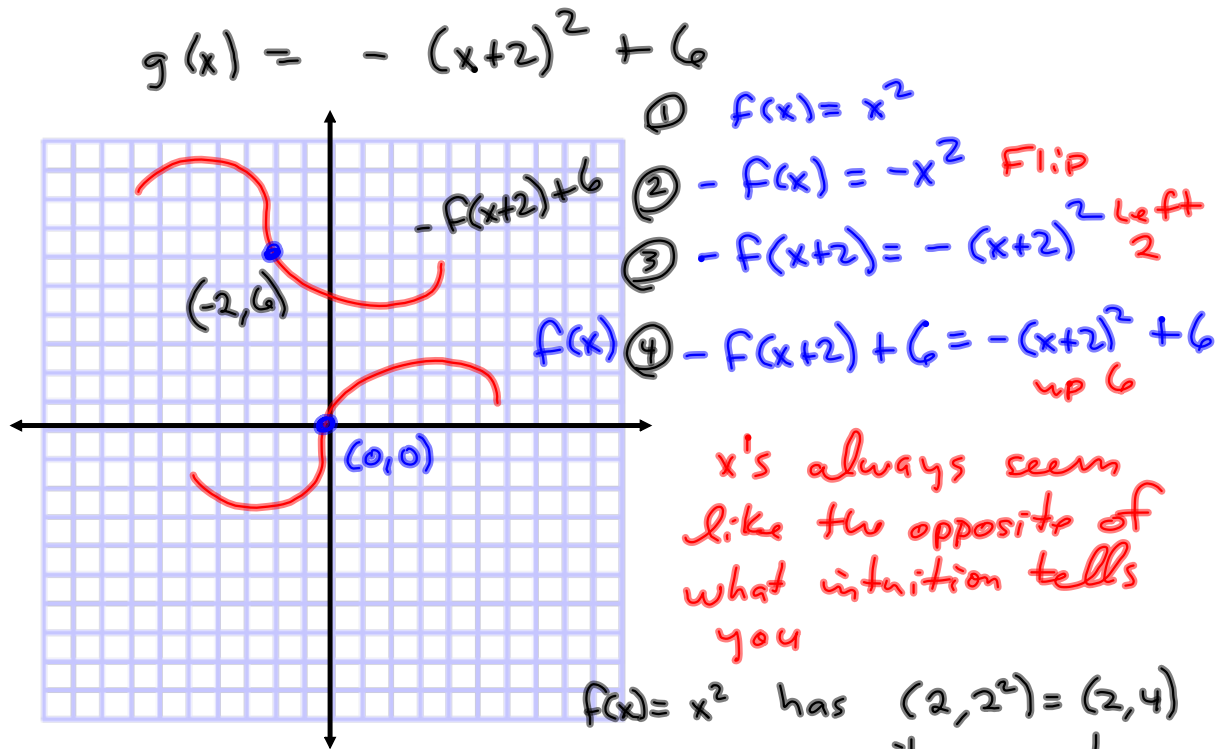
3<sup>rd</sup>:

$$x - y - 3z = 7$$

$$y + 2z = -5$$

$$-z = 4$$

After eliminating  $y$   
from  $R3$  of  
2<sup>nd</sup> system.



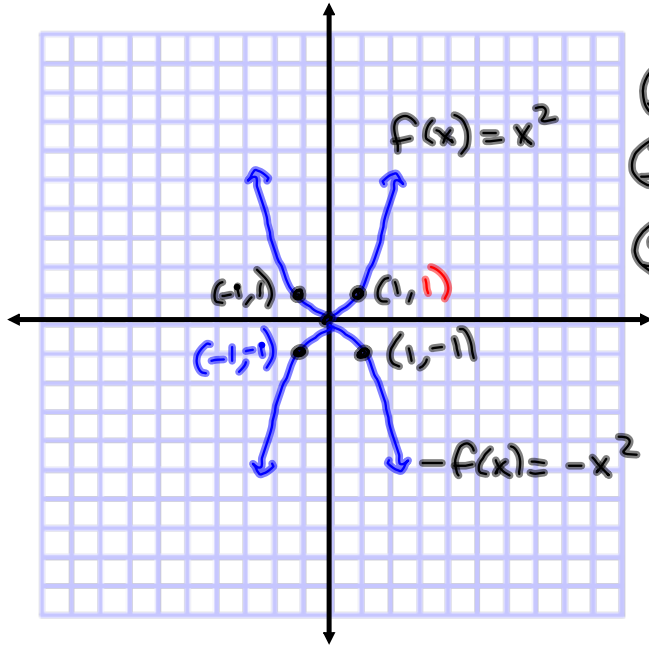
*x's always seem like the opposite of what intuition tells you*

$f(x) = x^2$  has  $(2, 2^2) = (2, 4)$  on its graph

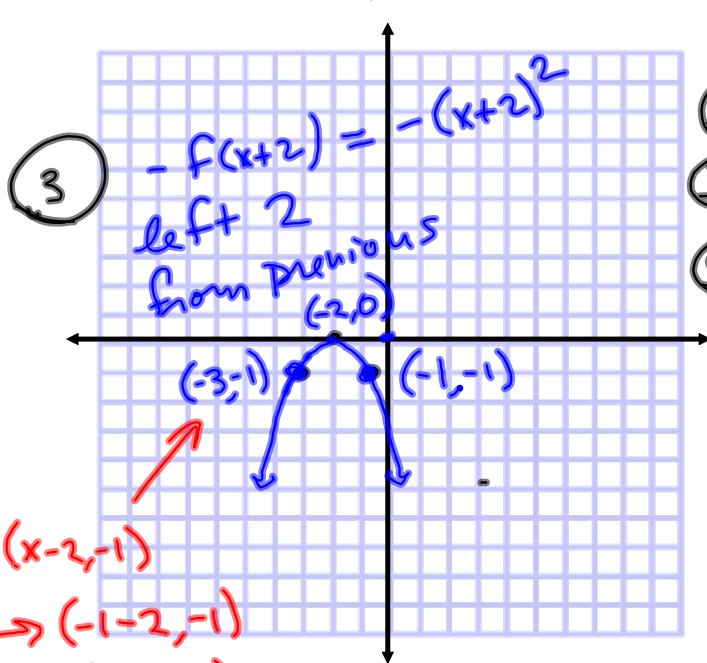
$f(x+3)$  has  $(-1, 4)$

↳ Does everything  $f(x)$  did, but 3 units earlier.

$-f(x) : (x, y) \mapsto (x, -y)$

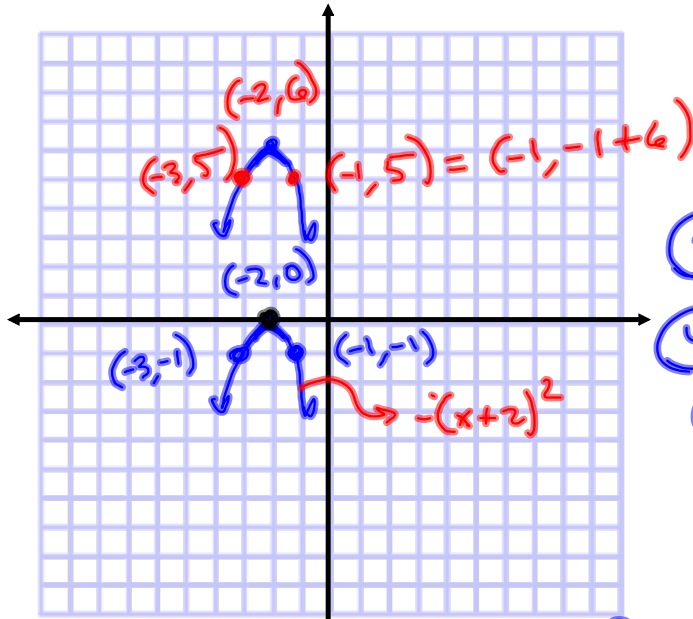


- ①  $f(x) = x^2$
- ②  $-f(x) = -x^2$  **Flip**
- ③  $-f(x+2) = -(x+2)^2$  **Left 2**
- ④  $-f(x+2) + 6 = -(x+2)^2 + 6$   
up 6  
what you expect



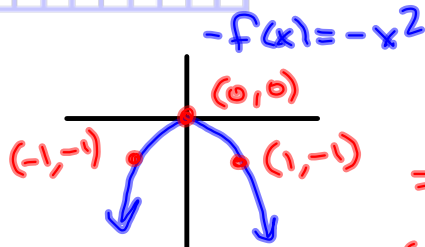
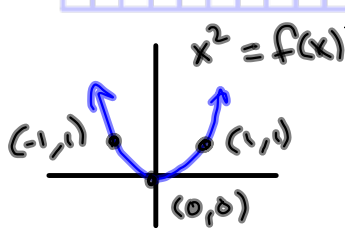
$(x-2, -1)$   
 $\rightarrow (-1-2, -1)$   
 $= (-3, -1)$

- ①
- ②  $-f(x)$
- ③  $-f(x+2) = -(x+2)^2$   
**Replaced x by x+2 inside**
- ④  $h(x) \rightarrow h(x+2)$   
 $(x, y) \mapsto (x-2, y)$   
**Point gets moved to  $(x-2, y)$  on the graph**

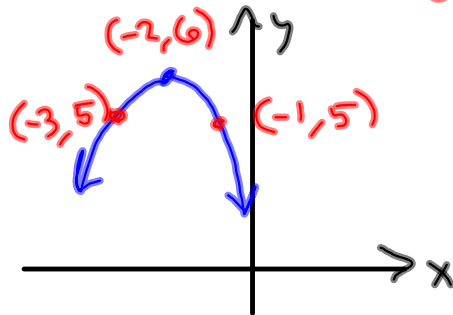
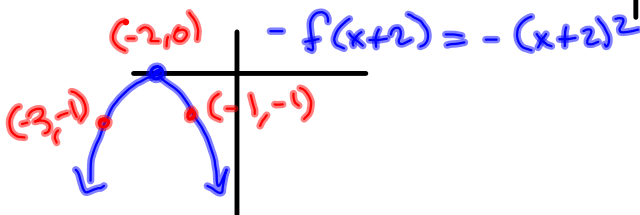


③  $-f(x+2) = -(x+2)^2$

④  $-f(x+2)+6 = -(x+2)^2 + 6$   
 $(x, y) \mapsto (x, y+6)$



$-(x+2)^2 + 6$   
 $= -f(x+2) + 6 = g(x)$



$f(x-7)$   
Right 7 from previous  
A Delay  $f(x)$  picture  
 $f(x+7)$   
An advance

$$(2x-7)(5x+11)$$

$$= 10x^2 + 22x - 35x - 77 = 10x^2 - 17x - 77$$

Scratch

$$\begin{cases} (2x)(5x) = 2 \cdot 5 \cdot x \cdot x = 10x^{1+1} = 10x^2 \\ (2x)(11) = 22x \\ (-7)(5x) = -35x \\ (-7)(11) = -77 \end{cases} \quad (3)(2) = (2)(3)$$

$$(a-b)(a+b) = a^2 + ab - ab - b^2$$

$$(-b)(b) = -b^2$$

$$= \boxed{a^2 - b^2 = (a-b)(a+b)} \quad \text{Memorize!}$$

$$(a-b)^2 = \boxed{(a-b)(a-b) = a^2 - 2ab + b^2}$$

$$(a-b)(a-b) = a^2 - ab - ab + b^2$$

$$= a^2 - 2ab + b^2$$

$$(-b)(-b) = b^2$$

Homework 5

$$2^{-5} = \frac{1}{2^5}$$

$$= \frac{1}{32}$$

Due Tuesday, 3/20

$$-32 = \frac{1}{32} \text{ Nope.}$$

$$(3x+5) - 11 = 3x+5-11$$

$$= 3x-6$$

$$\begin{aligned} & [(2x+1)-3][(2x+1)+3] \\ & [a-b][a+b] \end{aligned}$$

$$\begin{aligned} a &= 2x+1 \\ b &= 3 \end{aligned}$$

$$= (2x+1)^2 - 3^2$$

$$[a-b][a+b]$$

$$= \underline{4x^2 + 4x + 1 - 9}$$

$$= a^2 - b^2$$

$$(a+b)^2 = a^2 + 2ab + b^2$$

$$(2x+1)^2 = (2x)^2 + 2(2x)(1) + 1^2$$

$$4x^2 + 4x + 1$$