Today's Plan:

Learning Target (standard): I will use the graphing calculators to solve quadratics systems.

Students will: Complete practice problems over previous concepts at the boards, put up homework problems on the board and make necessary corrections to their own work, take notes over new material and complete practice problems over new concepts.

Teacher will: Provide practice problems over previous concepts, check homework problems for accuracy and provide students feedback, describe and provide examples of new concepts and assign students assessment problems over new concepts.

Assessment: Board work, homework check and homework assignment

Differentiation: Students will work at the board, go over and correct homework at their seats, actively engage in lecture over new concepts, practice new concepts with the aid of other students and the teacher and complete homework assignment.

NAME _____ #138

BELL RINGER

1) Write an equation of the line that passes through (2, 1) and is parallel to the line ~~y = 3x - 7~~

$m = 3$

$m_{\parallel} = 3$

$y = mx + b$

$1 = 3(2) + b$

$1 = 6 + b$

$b = -5$

$y = 3x - 5$

2.) Simplify $\frac{1}{2}(7)$.

$\frac{7}{2}$

3.) Is (1, 7) a solution to the equation $y = 8x - 1$?

Yes

$7 = 8(1) - 1$

$7 = 8 - 1$

$7 = 7 \checkmark$

Evaluate.

$f(x) = 2x^3 + 1 \quad g(x) = -x^2 - 3x + 2$

$2g(-2) \cdot -3f(1)$

$g(-2) = -(-2)^2 - 3(-2) + 2$

$= -4 + 6 + 2$

$g(-2) = 4$

$2g(-2) = 2(4)$

$2g(-2) = 8$

$f(1) = 2(1)^3 + 1$

$= 2 + 1$

$f(1) = 3$

$-3f(1) = -3(3)$

$-3f(1) = -9$

$2g(-2) \cdot -3f(1) = 8 \cdot -9$

$2g(-2) \cdot -3f(1) = -72$

Graph.

$f(x) = x^2 + 4x - 5$

1) opens up → minimum

2) vertex: $(-2, -9)$

$x = -\frac{b}{2a} = -\frac{4}{2(1)} = -\frac{4}{2} = -2$

$f(-2) = (-2)^2 + 4(-2) - 5$

$= 4 - 8 - 5$

$f(-2) = -9$

3) AOS: $x = -2$

4) I_x: $(-5, 0), (1, 0)$

$x^2 + 4x - 5 = 0$

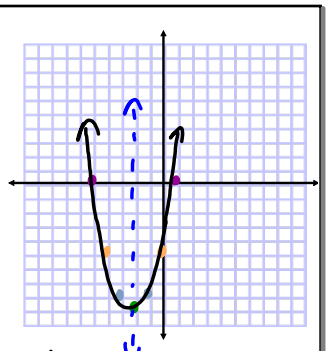
$x^2 + 5x - x - 5 = 0$

$x(x+5) - 1(x+5) = 0$

$(x+5)(x-1) = 0$

$x = -5, 1$

5 ^ 5 − 1 = 4



5)

x	y
* −4	−5
* −3	−8
−2	−9
* −1	−8
* 0	−5

$f(0) = (0)^2 + 4(0) - 5$

$= 0 + 0 - 5$

$f(0) = -5$

$f(-1) = (-1)^2 + 4(-1) - 5$

$= 1 - 4 - 5$

$f(-1) = -8$

Use DESMOS to answer the questions:

- What is the minimum or maximum value of the function?

y-value vertex

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

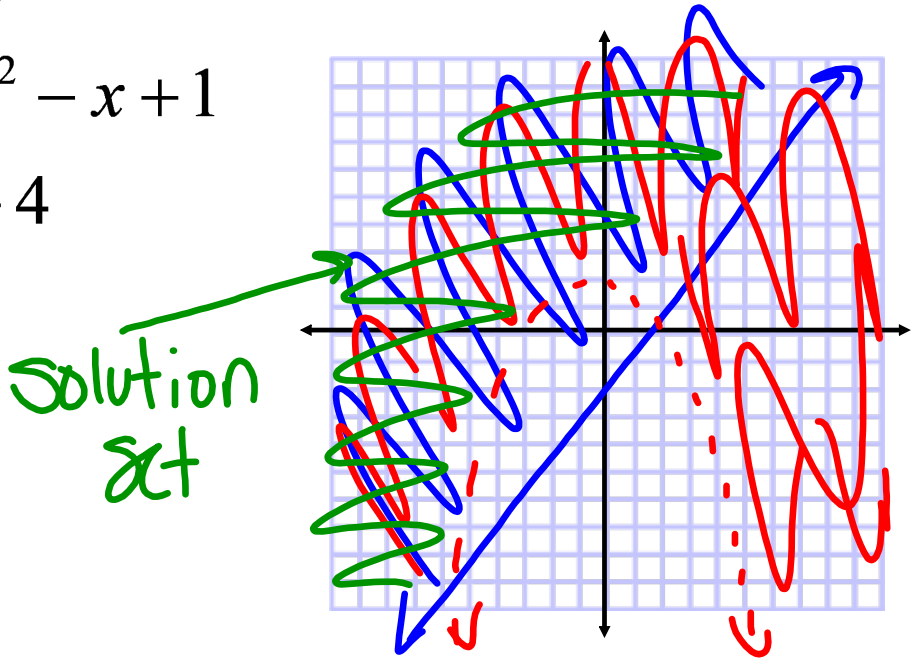
$\therefore$ The maximum value is $\frac{3}{2}$.

$g(x) = 2x^2 + 4x - 3$

$\therefore$ The minimum value is -5.

Solve the system:

- $y > -2x^2 - x + 1$
- $y \geq 3x - 4$



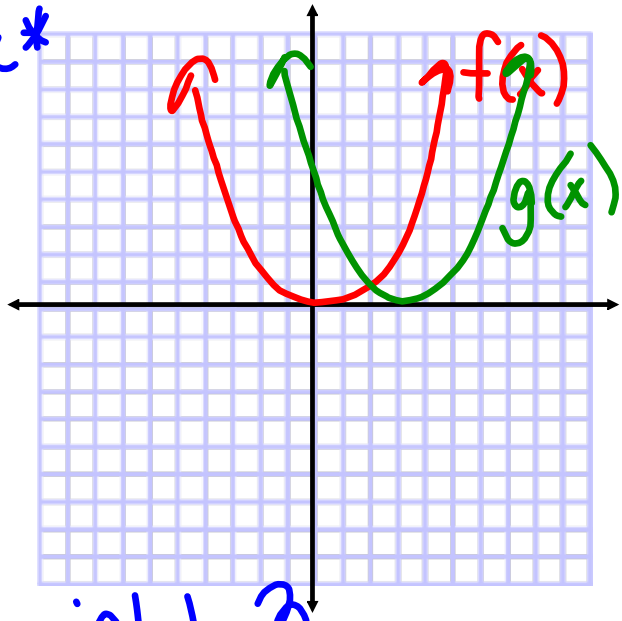
What transformation is applied to the graph of f(x) to get to the graph of g(x)?

change

$$g(x) = f(x-3)$$

$f(x)=x^2$

$g(x)=(x-3)^2$



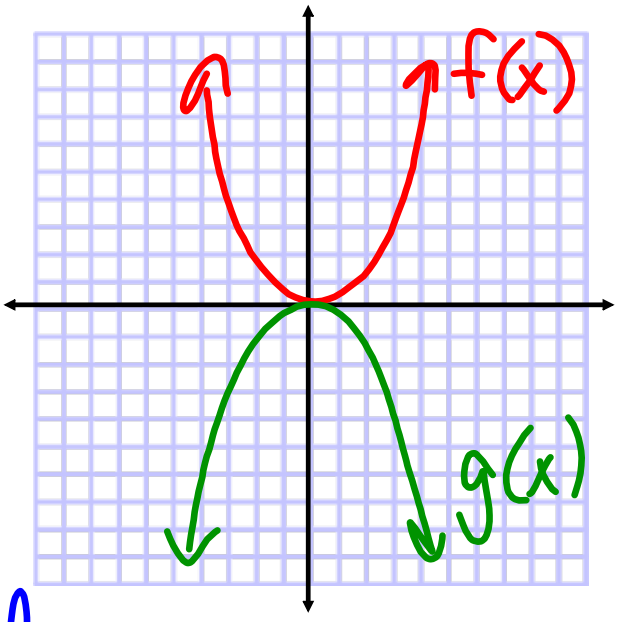
shifted right 3

What transformation is applied to the graph of f(x) to get to the graph of g(x)?

$$g(x) = -f(x)$$

$f(x)=x^2$

$g(x)=-x^2$



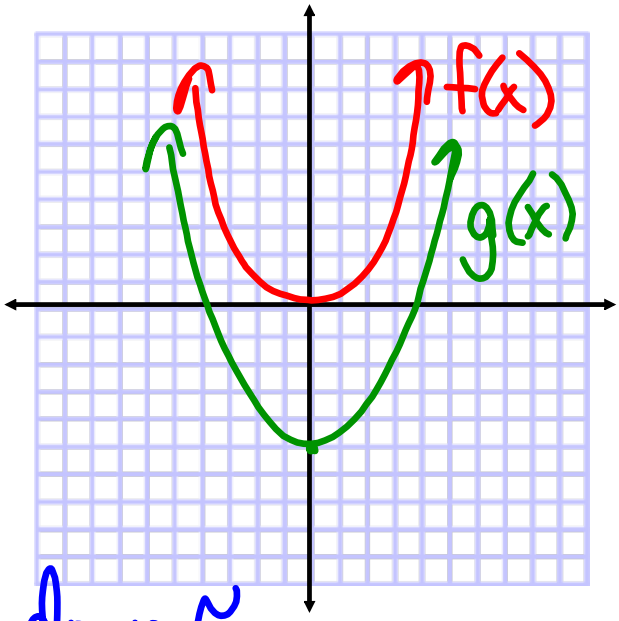
reflected over x-axis

What transformation is applied to the graph of f(x) to get to the graph of g(x)?

$$g(x) = f(x) - 5$$

$f(x) = x^2$

$g(x) = x^2 - 5$



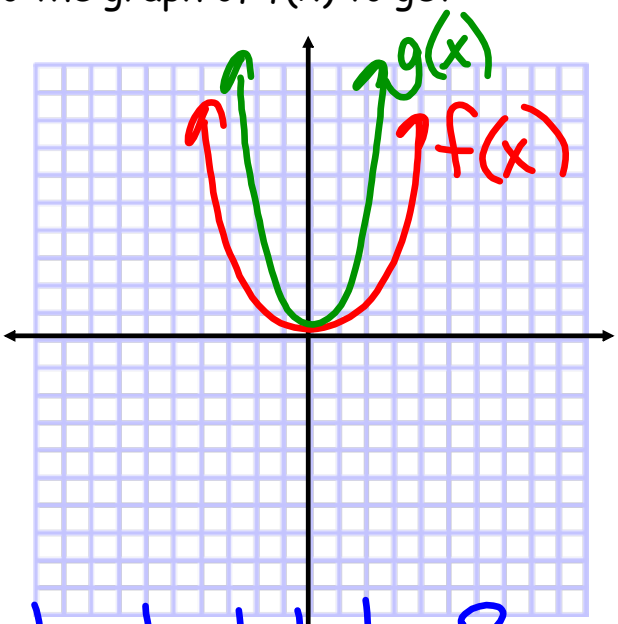
shift down 5

What transformation is applied to the graph of f(x) to get to the graph of g(x)?

$$g(x) = 3f(x)$$

$f(x) = x^2$

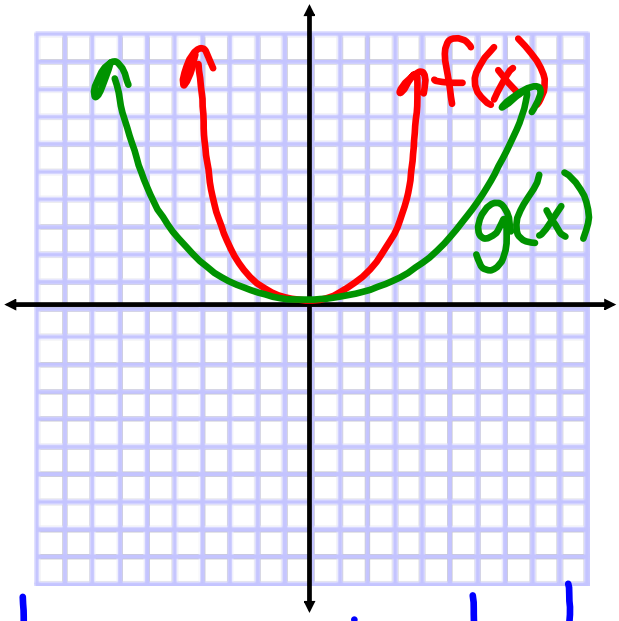
$g(x) = 3x^2$



vertical stretch by 3

What transformation is applied to the graph of f(x) to get to the graph of g(x)?

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



$f(x)=x^2$

$g(x)=\frac{1}{4}x^2$

Vertical Compression by $\frac{1}{4}$

Assignment:

Graphing Quadratic Functions &

Functions & Quadratic Systems Review