Today's Plan:

Learning Target (standard): I will describe quadratic equations as functions. I will use the graphing calculators to graph quadratic functions and find their x-intercepts.

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 _____   #130

BELL RINGER

1.) Find the x and y-intercept of the linear function $3x - 2y = 6$.

$$\mathbb{I}x: (2, 0)$$
$$\mathbb{I}y: (0, -3)$$

$3(0) - 2y = 6$
$-2y = 6$

$3x - 2(0) = 6$
$3x = 6$

2.) Solve $5(x - 2) = 9x + 3$

$5x - 10 = 9x + 3$
$-10 = 4x + 3$

$\dfrac{-13}{4} = \dfrac{4x}{4}$
$x = -\dfrac{13}{4}$

3.) Order the numbers in increasing order: $0.5, 5, -5, -1\frac{1}{5}, 1$

$-5, -1, -\dfrac{1}{5}, 0.5, 5$

Evaluate.

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

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

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

$$g(-2) = -(-2)^2 - 3(-2) + 2$$
$$= -4 + 6 + 2$$
$$g(-2) = 4$$

$$-3f(1) = -3(3)$$
$$-3f(1) = -9$$

$$2g(-2) = 2(4)$$
$$2g(-2) = 8$$

$$2g(-2) \cdot -3f(1) = 8 \cdot -9$$
$$2g(-2) \cdot -3f(1) = -72$$

Graph.

$$f(x) = x^2 - 6x - 7$$

a) opens up → minimum

b) vertex: $(3, -16)$
$$x = -\frac{b}{2a} = \frac{6}{2(1)} = \frac{6}{2} = 3$$
$$f(3) = (3)^2 - 6(3) - 7$$
$$= 9 - 18 - 7$$
$$f(3) = -16$$
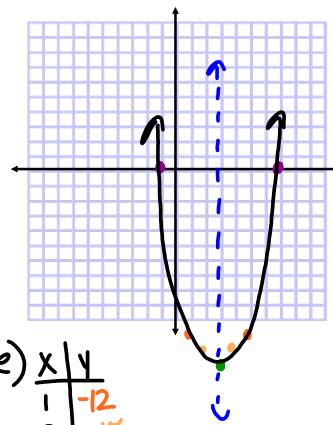
c) AOS: $x = 3$

d) Ix: $(-1, 0), (7, 0)$
$$x^2 - 6x - 7 = 0$$
$$x^2 - 7x + x - 7 = 0$$
$$x(x-7) + 1(x-7) = 0$$
$$(x-7)(x+1) = 0$$
$$x = 7, -1$$

e)

x	y
1	-12
2	-15
3	-16
4	-15
5	-12

$$f(1) = (1)^2 - 6(1) - 7$$
$$= 1 - 6 - 7$$
$$f(1) = -12$$

$$f(2) = (2)^2 - 6(2) - 7$$
$$= 4 - 12 - 7$$
$$f(2) = -15$$

Graphing Quadratic Functions using DESMOS:

* Pick up the chromebook with the same number (or close to the same) as your board spot *

   https://www.desmos.com/calculator

- we will use DESMOS to graph quadratic functions using the same 5-step process as we did by hand and we will include the x & y intercepts.

Evidence for Graphing on Calculator:

- Direction it opens -> Maximum or minimum

- Vertex

- AOS

- *x* and *y* intercepts

- *t*-chart   * Round decimals to the third decimal place *

- Graph

Graph.

$$f(x) = x^2 - 6x - 7$$

1) opens: up→minimum

2) vertex: $(3, -16)$
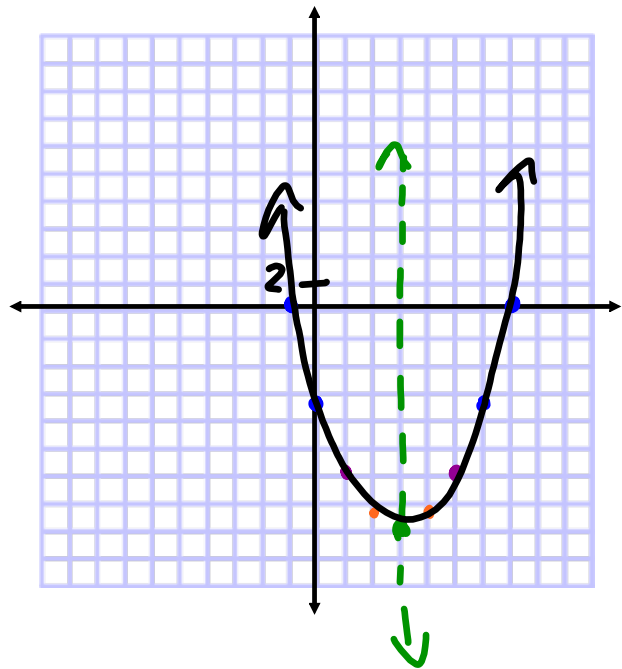
3) AOS: $x = 3$

4) I_x: $(-1, 0), (7, 0)$

   I_y: $(0, -7)$

5)

x	y
1	-12
2	-15
3	-16
4	-15
5	-12

Assignment:

Graphing Quadratic Equations

Calculator Activity

#1-8

*Use the 6-step process to graph each function