

Today's Plan:

Learning Target (standard): I will describe quadratic equations as functions. I will find the vertex of a quadratic function.

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 _____

#19

BELL RINGER

0:00:00

1.) Solve $-7x + 2x = -25$.

$$-5x = -25$$

$$x = 5$$

2.) Find the x-intercept for the linear equation $2x - 3y = 12$.

$$I_x: (6, 0)$$

$$2x - 3(0) = 12$$

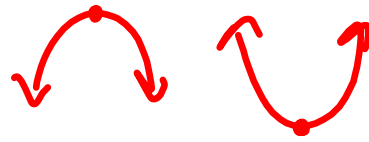
$$2x = 12$$

3.) Find the slope and y-intercept of the linear equation $2x + y = 7$.
What is the slope of a parallel line? Perpendicular line?

$$m_{\parallel} = -2 \quad m_{\perp} = \frac{1}{2} \quad m = -2 \quad y = -2x + 7$$

$$I_y: (0, 7)$$

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



1) opens: down \rightarrow maximum

2) vertex: $(-7, -2)$

$$11) f(x) = -4x^2 + 32x - 54$$

1) opens: down \rightarrow maximum

2) vertex: $(4, 10)$

$$x = -\frac{b}{2a} = \frac{-32}{2(-4)} = \frac{-32}{-8} = 4$$

$$\begin{aligned} f(4) &= -4(4)^2 + 32(4) - 54 \\ &= -64 + 128 - 54 \end{aligned}$$

$$f(4) = 10$$

X	Y
1	2
2	-1
5	4

Function? Why?
 Function - every x-value
 has only one y-value

X	Y
0	3
1	-2
2	3

Function? Why?
 Function - every x-value
 has only one y-value

Create a t-chart with 4 x-values that is the chart of a function.
 Create a t-chart with 4 x-values that is the chart of a non-function.

Function

X	Y
1	5
2	6
3	7
4	8

Non-Function

X	Y
0	-1
0	-2
0	-3
0	-4

Tell which direction the parabola opens.
Find the vertex.

$$f(x) = \frac{1}{2}(x+5)^2 + 2$$

$x+5=0$
 $x=-5$

1) opens: **up** → **minimum**

2) vertex: **(-5, 2)**

Tell which direction the parabola opens.
Find the vertex.

$$f(x) = 4(x+6)^2 - 3$$

$x+6=0$
 $x=-6$

1) opens: **up** → **minimum**

2) vertex: **(-6, -3)**

Tell which direction the parabola opens. Find the vertex.

$$f(x) = \frac{1}{3}(x+2)^2 + 3$$

$x+2=0$
 $x=-2$

1) opens: up \rightarrow minimum

2) vertex: $(-2, 3)$

Tell which direction the parabola opens. Find the vertex.

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

1) opens: up \rightarrow minimum

2) vertex: $(1, -4)$

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

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

$$= 2 - 4 - 2$$

$$f(1) = -4$$

Tell which direction the parabola opens. Find the vertex.

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

1) opens: **down** → maximum

2) vertex: **(-2, -1)**

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

$$\begin{aligned} f(-2) &= -(-2)^2 - 4(-2) - 5 \\ &= -4 + 8 - 5 \end{aligned}$$

$$f(-2) = -1$$

Tell which direction the parabola opens. Find the vertex.

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

1) opens: **down** → maximum

2) vertex: **(1, -3)**

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

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

$$= -2 + 4 - 5$$

$$f(1) = -3$$

Assignment:

Vertex of a Quadratic 2

#1-16

* tell the direction & find the vertex *