Today's Plan:

Learning Target (standard): I will graph quadratic relations and functions using the vertex method.

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, and take a quiz.

Teacher will: Provide practice problems over previous concepts, check homework problems for accuracy and provide students feedback, describe and provide quiz problems.

Assessment: Board work, homework check and quiz

Differentiation: Students will work at the board, go over and correct homework at their seats, and actively engage in quiz problems.

Jan 23-1:40 PM

Graph.

$x = 2y^2 - 6y - 8$

a) opens right

b) vertex: $\left(-\frac{25}{2}, \frac{3}{2}\right)$

$y = -\frac{b}{2a} = \frac{6}{2(2)} = \frac{3}{2}$

$x = 2\left(\frac{3}{2}\right)^2 - 6\left(\frac{3}{2}\right) - 8$

$= \frac{9}{2} - 9 - 8$

$= \frac{9}{2} - 17$

$= \frac{9}{2} - \frac{34}{2}$

$x = -\frac{25}{2}$

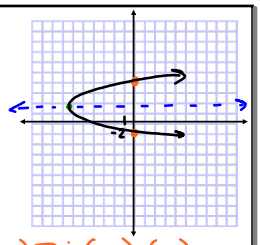
c) AOS: $y = \frac{3}{2}$

d) $b^2 - 4ac$

$36 - 4(2)(-8)$

$36 + 64$

$100 > 0$ $2I_y$



e) I_y: $(0,-1), (0,4)$

$y = \frac{6 \pm \sqrt{100}}{2(2)} = \frac{6 \pm 10}{4}$

$y = 4, -1$

Jun 30-12:09 PM

Graph.

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

a) opens down → maximum

b) vertex: $(1,-1)$

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

$f(1) = -2 + 4 - 3$

$f(1) = -1$

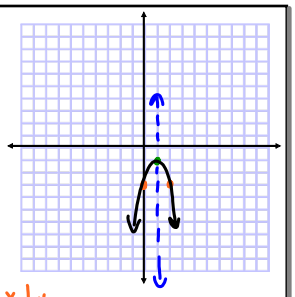
c) AOS: $x = 1$

d) $b^2 - 4ac$

$16 - 4(-2)(-3)$

$16 - 24$

$-8 < 0$ $0I_x$



e)

x	y
0	-3
1	-1
2	-3

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Graph.

$x = -9 - 8y - y^2$

① opens left

② vertex: $(7,-4)$

$y = -\frac{b}{2a} = \frac{8}{2(-1)} = \frac{8}{-2} = -4$

$x = -9 - 8(-4) - (-4)^2$

$= -9 + 32 - 16$

$x = 7$

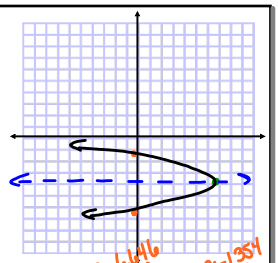
③ AOS: $y = -4$

④ $b^2 - 4ac$

$64 - 4(-1)(-9)$

$64 - 36$

$28 > 0$ $2I_y$



⑤ I_y: $(0, \overset{\approx -6.646}{-4-\sqrt{7}}), (0, \overset{\approx -1.354}{-4+\sqrt{7}})$

$y = \frac{8 \pm \sqrt{28}}{2(-1)} = \frac{8 \pm 2\sqrt{7}}{-2} \div -2$

$y = -4 \pm \sqrt{7}$

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Transformations:

"outside" - y-values
"inside" - x-values

parent: $f(x) = x^2$

1) reflection over x-axis

2) reflection over y-axis

3) vertical stretch or compression

4) horizontal stretch or compression

5) shift left or right * set inside equal to 0 and solve *

6) shift up or down