AGENDA

1) Take out HW to be Checked
   HW Questions?
2) DO NOW
   - Multiple Choice Concept Check
3) Packet
   - Graphing Parabolas with Quadratic Formula

* Will collect one Worksheet per person

HW: Quadratic Equations Using the Quadratic Formula

DO NOW:

Multiple Choice: Choose the best answer.

_____ 1. Which of the following is NOT a quadratic function?

A. $-7x(5+x)$ C. $y=12.5-9.2x^2$

B. $y=4x^2+1-2x^3$ D. $y=(x-6)^2$

_____ 2. What number completes the square for the quadratic expression $x^2 + 12x$?

A. 6 B. 12 C. 24 D. 36 E. 144

_____ 3. What is the y-intercept of $f(x)=9x^2+5x-8$?

A. 9 B. 5 C. -8 D. none of the above

_____ 4. If the roots (or zeros) of the parabola are $(1,0)$ and $(5,0)$, then the axis of symmetry is

A. $x=1$ B. $x=2$ C. $x=3$

D. $x=4$ E. $x=5$

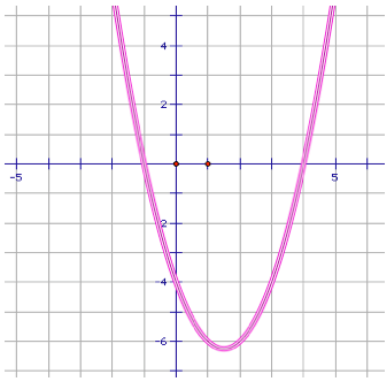
_____ 5. Which of the following could be the equation of the parabola in the figure?

A. $y=(x-1)(x-4)$

B. $y=(x-1)(x+4)$

C. $y=(x+1)(x-4)$

D. $y=(x+1)(x+4)$



_____ 6. The vertex of a parabola is at (2, -7). The parabola _____

A. opens up B. opens down C. opens to the right

D. has a maximum point E. not enough information

_____ 7. If $(3,5)$ is a point on the parabola with an axis of symmetry $x=6$, use symmetry to find another point on the parabola. That point would be

A. $(6,3)$ B. $(3,6)$ C. $(5,6)$

D. $(9,5)$ E. $(6,5)$

DO NOW:

Multiple Choice: Choose the best answer.

B ____ 1. Which of the following is NOT a quadratic function?

A. $-7x(5+x)$ C. $y = 12.5 - 9.2x^2$

B. $y = 4x^2 + 1 - 2x^3$ D. $y = (x-6)^2$

D ____ 2. What number completes the square for the quadratic expression $x^2 + 12x$?

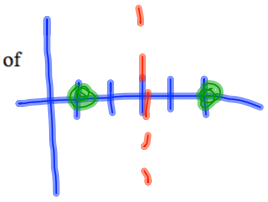
A. 6 B. 12 C. 24 D. 36 E. 144

$\left(\frac{12}{2}\right)^2 = (6)^2 = 36$

C ____ 3. What is the y-intercept of $f(x) = 9x^2 + 5x - 8$?

A. 9 B. 5 C. -8 D. none of the above

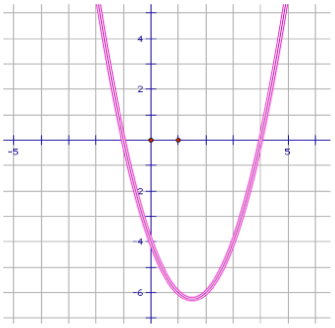
C ____ 4. If the roots (or zeros) of the parabola are $(1, 0)$ and $(5, 0)$, then the axis of symmetry is



A. $x = 1$ B. $x = 2$ C. $x = 3$

D. $x = 4$ E. $x = 5$

C ____ 5. Which of the following could be the equation of the parabola in the figure?



A. $y = (x-1)(x-4)$

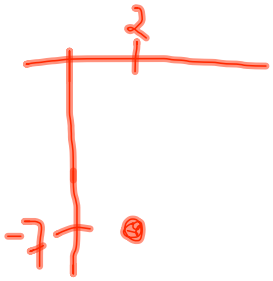
B. $y = (x-1)(x+4)$

C. $y = (x+1)(x-4)$

D. $y = (x+1)(x+4)$

$x = -1$ or 4

E ____ 6. The vertex of a parabola is at (2, -7). The parabola _____



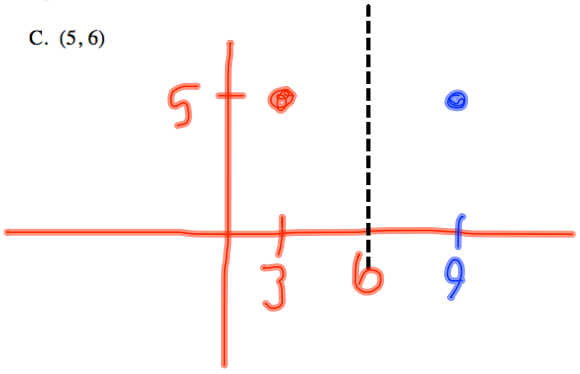
A. opens up B. opens down C. opens to the right

D. has a maximum point E. not enough information

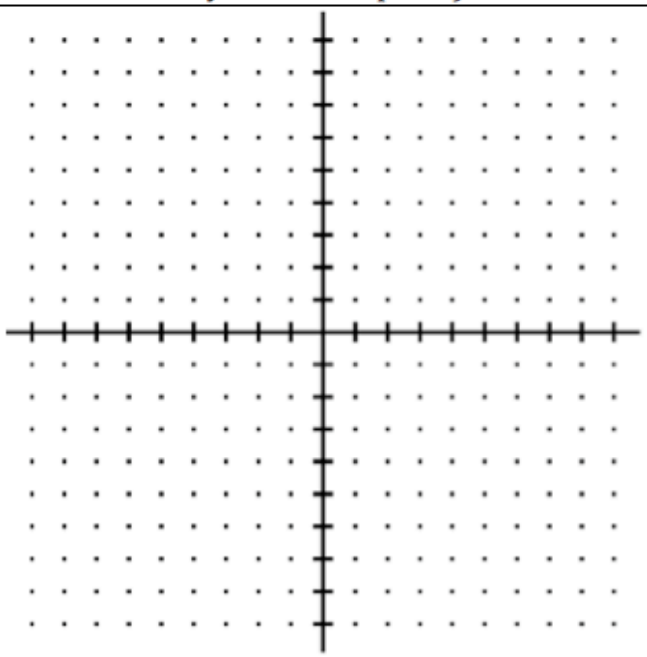
D ____ 7. If $(3, 5)$ is a point on the parabola with an axis of symmetry $x = 6$, use symmetry to find another point on the parabola. That point would be

A. (6, 3) B. (3, 6) C. (5, 6)

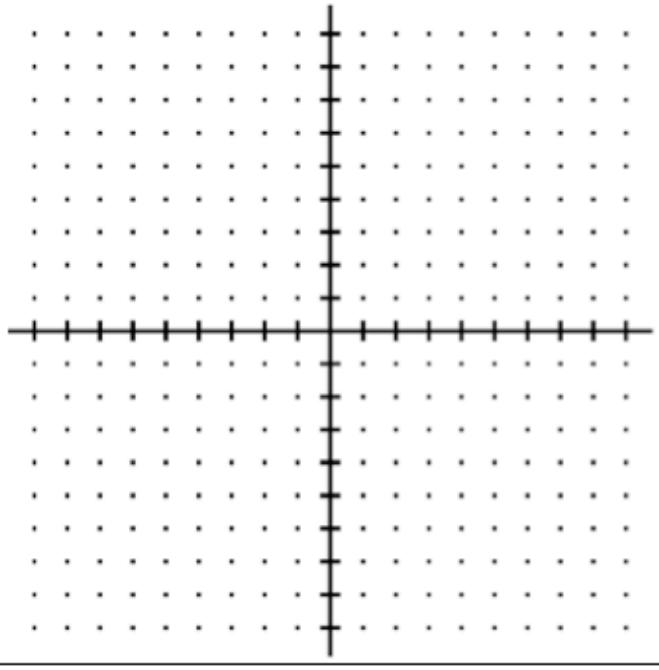
D. (9, 5) E. (6, 5)



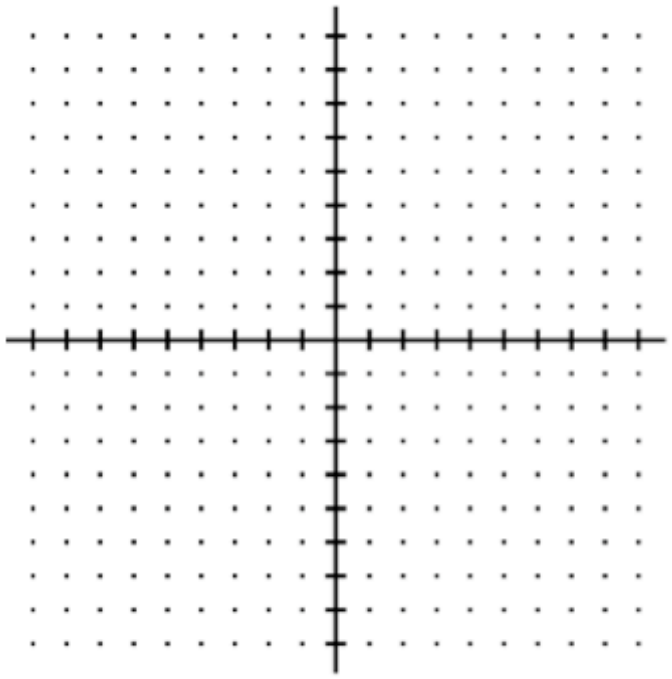
Worksheet 1: Graph Parabolas Using Quadratic Formula

Given the equation: $3x^2 = 6x - 3$	What is the vertex?
Identify: a = _____ b = _____ c = _____ Is the parabola opening up or down? (Circle one) What is the coordinate of the y-intercept? (___ , ____)	x-value: $x = \frac{-(b)}{2(a)}$ y-value: coordinate of vertex: (___ , ____)
Find the Root(s) Using Quadratic Formula:	Graph the Parabola (include vertex, root(s), y-intercept & symmetrical point)
$x = \frac{-(\ ) \pm \sqrt{(\ )^2 - 4(\ )(\ )}}{2(\ )}$	

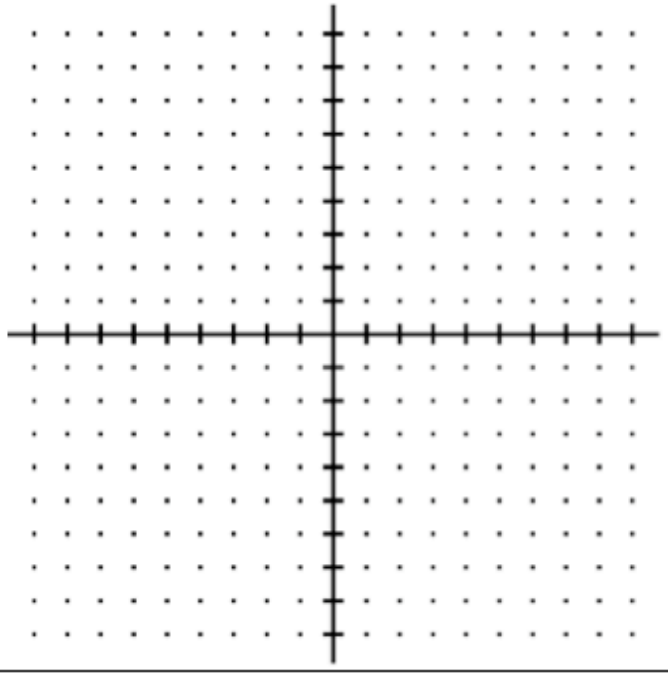
Worksheet 2: Graph Parabolas Using Quadratic Formula

Given the equation: $x^2 = -3x + 40$	What is the vertex?
Identify: a = _____ b = _____ c = _____ Is the parabola opening **up or down**? (Circle one) What is the coordinate of the y-intercept? (___ , ____)	x-value: y-value: coordinate of vertex: (___ , ____)
Find the Root(s) Using Quadratic Formula:	Graph the Parabola (include vertex, root(s), y-intercept & symmetrical point)
	

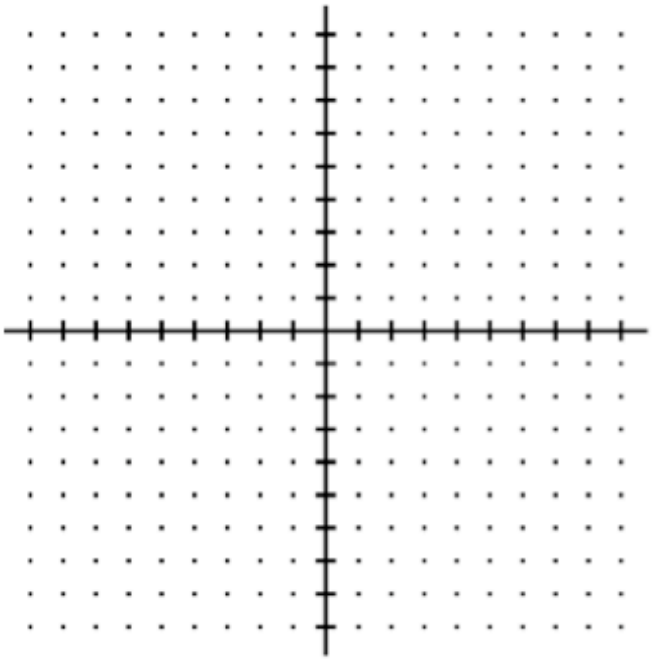
Worksheet 3: Graph Parabolas Using Quadratic Formula

Given the equation: $9x^2 - 11 = 6x$	What is the vertex?
Identify: a = _____ b = _____ c = _____ Is the parabola opening **up or down**? (Circle one) What is the coordinate of the y-intercept? (___ , ____)	x-value: y-value: coordinate of vertex: (___ , ____)
Find the Root(s) Using Quadratic Formula:	Graph the Parabola (include vertex, root(s), y-intercept & symmetrical point)
	

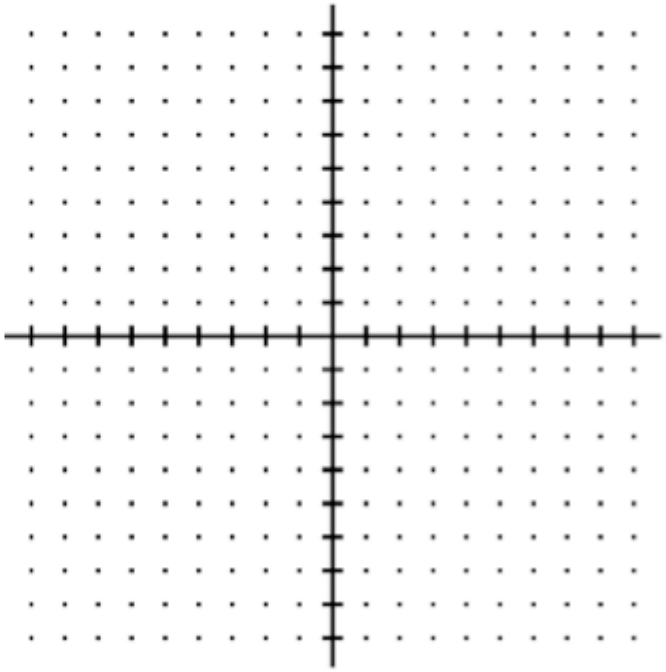
Worksheet 4: Graph Parabolas Using Quadratic Formula

Given the equation: $4x^2 - 8 = x$	What is the vertex?
Identify: a = _____ b = _____ c = _____ Is the parabola opening up or down? (Circle one) What is the coordinate of the y-intercept?	
Find the Root(s) Using Quadratic Formula:	Graph the Parabola (include vertex, root(s), y-intercept & symmetrical point)
	

Worksheet 5: Graph Parabolas Using Quadratic Formula

Given the equation: $8x^2 - 2x + 1 = 5x$	What is the vertex?
Identify: a = _____ b = _____ c = _____ Is the parabola opening **up or down**? (Circle one) What is the coordinate of the y-intercept?	
Find the Root(s) Using Quadratic Formula:	**Graph the Parabola** (include vertex, root(s), y-intercept & symmetrical point)
	

Worksheet 6: Graph Parabolas Using Quadratic Formula

Given the equation: $4x^2 - 4x - 8 = 1$	What is the vertex?
Identify: a = _____ b = _____ c = _____ Is the parabola opening **up or down**? (Circle one) What is the coordinate of the y-intercept?	
Find the Root(s) Using Quadratic Formula:	Graph the Parabola (include vertex, root(s), y-intercept & symmetrical point)
	

Looking for More?

Find the **y-intercept**, **vertex** and **root(s)** for the following:

11) $n^2 + 8n = -15$

12) $5r^2 - 44r + 120 = -30 + 11r$

13) $-4k^2 - 8k - 3 = -3 - 5k^2$

14) $b^2 + 5b - 35 = 3b$

15) $3r^2 - 16r - 7 = 5$

16) $6b^2 - 13b + 3 = -3$

17) $7k^2 - 6k + 3 = 3$

18) $35k^2 - 22k + 7 = 4$

19) $7x^2 + 2x = 0$

20) $10b^2 = 27b - 18$

21) $8x^2 + 21 = -59x$

22) $15a^2 - 3a = 3 - 7a$

11) $n^2 + 8n = -15$

$\{-5, -3\}$

12) $5r^2 - 44r + 120 = -30 + 11r$

$\{6, 5\}$

13) $-4k^2 - 8k - 3 = -3 - 5k^2$

$\{8, 0\}$

14) $b^2 + 5b - 35 = 3b$

$\{-7, 5\}$

15) $3r^2 - 16r - 7 = 5$

$\left\{-\frac{2}{3}, 6\right\}$

16) $6b^2 - 13b + 3 = -3$

$\left\{\frac{2}{3}, \frac{3}{2}\right\}$

17) $7k^2 - 6k + 3 = 3$

$\left\{\frac{6}{7}, 0\right\}$

18) $35k^2 - 22k + 7 = 4$

$\left\{\frac{1}{5}, \frac{3}{7}\right\}$

19) $7x^2 + 2x = 0$

$\left\{-\frac{2}{7}, 0\right\}$

20) $10b^2 = 27b - 18$

$\left\{\frac{6}{5}, \frac{3}{2}\right\}$

21) $8x^2 + 21 = -59x$

$\left\{-\frac{3}{8}, -7\right\}$

22) $15a^2 - 3a = 3 - 7a$ $\left\{\frac{1}{3}, -\frac{3}{5}\right\}$

HW: Quadratic Equations Using the Quadratic Formula

Find the **y-intercept**, **vertex** and **root(s)** for the following:

1) $3n^2 - 5n - 8 = 0$

2) $x^2 + 10x + 21 = 0$

3) $10x^2 - 9x + 6 = 0$

4) $p^2 - 9 = 0$

5) $6x^2 - 12x + 1 = 0$

6) $6n^2 - 11 = 0$

HW: Quadratic Equations Using the Quadratic Formula

Find the **y-intercept**, **vertex** and **root(s)** for the following:

1) $3n^2 - 5n - 8 = 0$

y- intercept: (0,-8)

vertex: (5/6, -121/12)
= (0.833, -10.0833)

Roots: (-1,0) (2.67, 0)

2) $x^2 + 10x + 21 = 0$

y- intercept: (0,21)

vertex: (-4,5)

Roots: (-7,0) (-3,0)

3) $10x^2 - 9x + 6 = 0$

y- intercept: (0,6)

vertex: (.45, 3.98)

Roots: NO ROOTS

4) $p^2 - 9 = 0$

y- intercept: (0,-9)

vertex: (0,-9)

Roots: (-3,0) (3, 0)

5) $6x^2 - 12x + 1 = 0$

y- intercept: (0,1)

vertex: (1,-5)

Roots: (0.0871,0) (1.9129, 0)

6) $6n^2 - 11 = 0$

y- intercept: (0,-8)

vertex: (0, -11)

Roots: (-1.354,0) (1.354, 0)