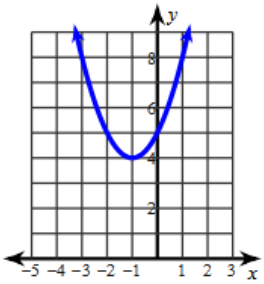
March 15th

Due Today: HW 9.7
Due Tomorrow: HW 9.8

Unit 9: Quadratic Functions

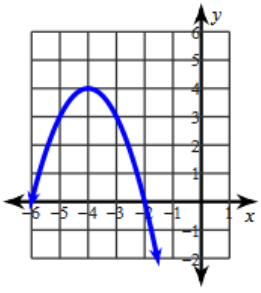
Lesson 9.8: Modeling with Quadratics

Answers to HW 9.7

1) 

2) when x=3, f(x) =20
when x = -2, f(x) =5
when x = -3, f(x) = 8

when f(x) = 5, x = -2,0
when f(x) = 4, x = -1
when f(x) = 20, x = -5,3
when f(x) = 2, x = DNE

3) 

4) Vertex: (-4,4)
AOS: x = -4
Roots: x = -2, -6

5) **Vertex: (3,-4)**

AOS: x = 3

Roots: x = 1.56, 4.42

6) $\{-6, -7\}$

7) $\{2, -14\}$

8) $\{11.1\dot{9}6, 0.804\}$

HW CHECK

(5) $y = -2x^2 - 12x + 14$

$x = \frac{-b}{2a} \quad \frac{12}{2(2)} = 3$

V: (3, -4)

AOS: $x = 3$

$y = 2(3)^2 - 12(3) + 14$

$= -4$

$0 = 2x^2 - 12x + 14$

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

$x = \frac{12 \pm \sqrt{(-12)^2 - 4(2)(14)}}{2(2)}$

$= \frac{12 \pm \sqrt{32}}{4}$

$= \frac{12 \pm 5.66}{4}$

(8) $x^2 - 12x = -9$

$+9 \quad +9$

$x^2 - 12x + 9 = 0$

$$x = \frac{12 \pm \sqrt{(-12)^2 - 4(1)(9)}}{2}$$

$$= \frac{12 \pm \sqrt{108}}{2}$$

$$= \frac{12 \pm 10.4}{2}$$

$$= \frac{12 + 10.4}{2}, \frac{12 - 10.4}{2}$$

$$= \frac{22.4}{2}, \frac{1.6}{2}$$

$= 11.2 \quad = 0.8$

(7) $x^2 + 12x = 28$

$+36 \quad +36$

$\frac{12}{2} = 6^2 = 36$

$x^2 + 12x + 36 = 64$

$\sqrt{(x+6)^2} = \sqrt{64}$

$x + 6 = \pm 8$

$x + 6 = 8 \quad x + 6 = -8$

$-6 \ -6 \quad -6 \ -6$

$x = 2, -14$

Quadratics

- algebraic solutions (9.4 Quiz)
  - factoring, completing the square, quad. formula
- graphical representations (9.7 Quiz)
  - graphing, identifiying V, AOS, ROOTs, finding V,A,R algebraically
- modeling
  - writing an equation that represents a situation,
  - using a funciton to answer questions about a situation

Write a quadratic equation that repre

Jane is 5 years older than her brother, Mike. The PRODUCT of their ages is 204.

j = Jane's Age

$j-5$ = Mike's Age

$j(j-5)=204$

$j^2-5j=204$

Solve your equation to determine the ages of Jane and Mike.

$j^2-5j=204$

$-204 \quad -204$

$j^2-5j-204=0$

$+$ -5 -17 12 -204

$(j-17)(j+12)=0$

$j-17=0, \quad j+12=0$

$j=17 \quad -12$

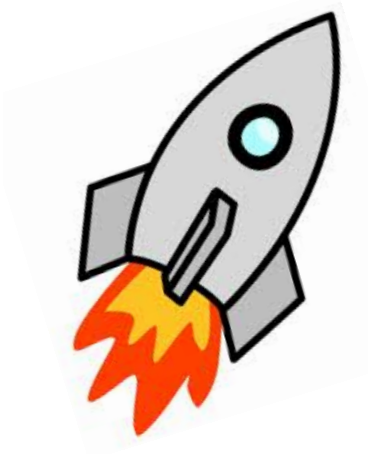
↑ extraneous solution

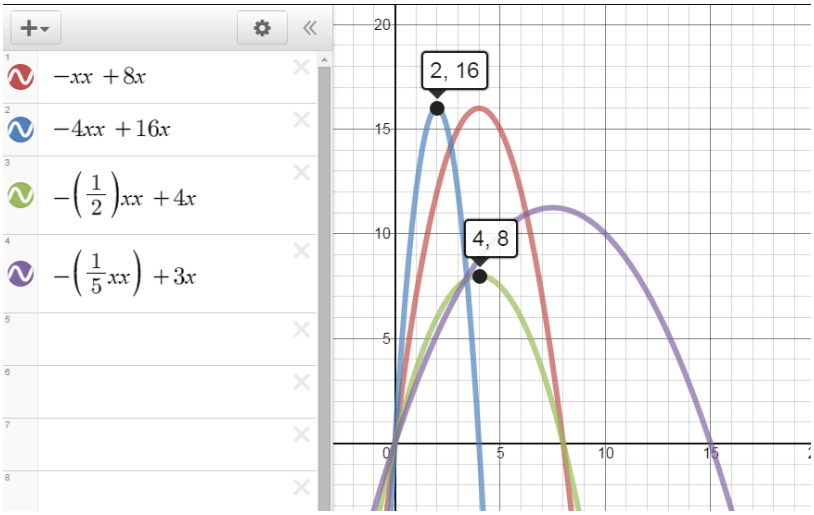
Jane is 17

Mike is 12

MODELING WITH QUADRATICS

1. DEFINE A VARIABLE
2. Write your quadratic equation!
3. Solve your quadratic equation - check for extraneous solutions!
4. Write our your solutions!




$-xx+8x$
$-4xx+16x$
$-\left(\frac{1}{2}\right)xx+4x$
$-\left(\frac{1}{5}xx\right)+3x$
2, 16
4, 8
20
15
10
5
0
5
10
15

Unit 9: Quadratic Equations

Lesson #	Name	Recap	HW
9.1	Intro to Quadratics		HW 9.1
9.2	Solving Quads by Completing the Square		HW 9.2
9.3	Solving Quads using the Quadratic Formula		HW 9.3 QUIZ WED: - factoring, comp. the square, quad formula
9.4	Quiz + Picking a Method		HW 9.4
9.5	Graphing Parabolas		Finish Packet
9.6	Finding the Vertex Algebraically		HW 9.6 QUIZ MONDAY!
9.7	QUIZ + Quad Functions		HW 9.7
9.8	Modeling with Quads		HW 9.8