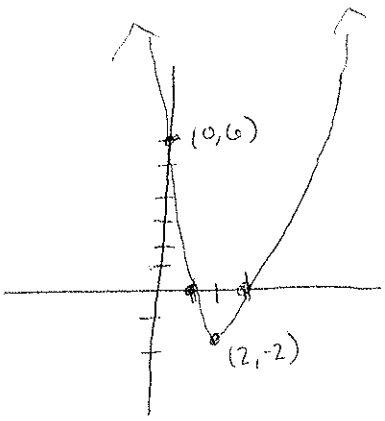
Cornell Notes

Name	Eddie Dolgado	Date	10/27/11
Topic	Graphing Quadratic Functions	Class/ Suject	Algebra II P.5 Mrs. Asberry

(10:13)



(10:33)

(to find vertex)

Warm-up

- Graph $y = 2x^2 + 8x + 6$
  - a. determine y-int ($x=0$)
    $y = 2(0)^2 - 8(0) + 6 \rightarrow y = 6$
  - b. Determine x-int ($y=0$)
    $0 = 2x^2 + 8x + 6$
    $0 = 2(x^2 + 4x + 3)$
    $2(x-1)(x-3) = 0$ $x-1=0$ $x-3=0$
    $x=1$ $x=3$
  - c. Turning Pt
    $x = \frac{-b}{2a}$ $x = \frac{-(-8)}{2(2)} = \frac{8}{4} = 2$
    $y = 2(2)^2 - 8(2) + 6$
    $y = 8 - 16 + 6$
    $y = -8 + 6 \rightarrow y = -2$ $(2, -2)$

HW questions

Pg 96. #3 $h(t) = -10t^2 + 15t + 25$

a. $h(0) = -10(0)^2 + 15(0) + 25$
$h(0) = 25$ meters

b. $t = \frac{b}{2a} \rightarrow \frac{-15}{2(-10)} = \frac{-15}{-20} = \frac{3}{4}$ (or .75)
$h(.75) = -10(.75)^2 + 15(.75) + 25$
$h(.75) = 30.625$ meters
Vertex = $(\frac{3}{4}, 30.625)$

c. $0 = -10t^2 + 15t + 25$
$-5(2t^2 - 3t - 5)$
$-5(2t^2 - 5t + 2t - 5)$
$-5(2t^2 - 5t) + 2t - 5)$
$-5[t(2t-5) + 1(2t-5)]$
$(t+1)(2t-5) = 0 \rightarrow t = -1$ or $t = \frac{5}{2}$

$-5 \cdot -10 = 2$, $-5 + -3$

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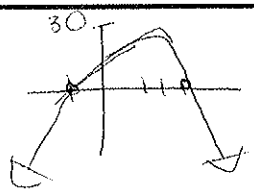
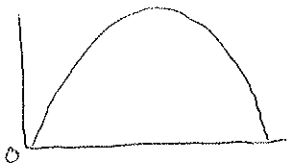


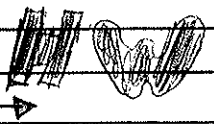
Hw
Hw
Hw

Project →
Graph will look like this



(V1 2.00)

Co (cont) t = 2.5 sec (3/2)



Assignment #38
(worksheet)

Water fountain project
- be careful w/ your labels
- measure from top of water.

Measure water fountain parabola

Students went over yesterdays Homework and reviewed yesterdays material to reinforce their knowledge of the subject material for their new water fountain project.

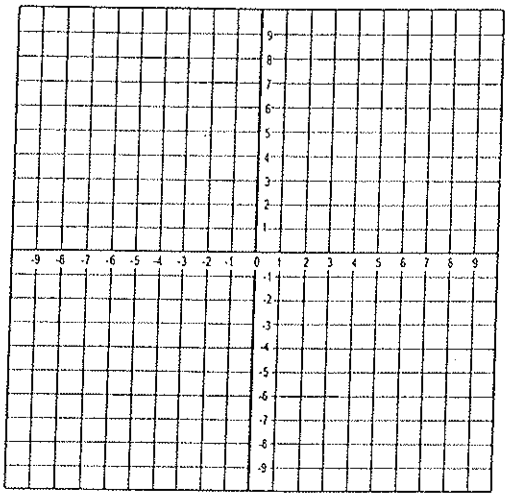
Name: _____ Date: _____ Period: ____

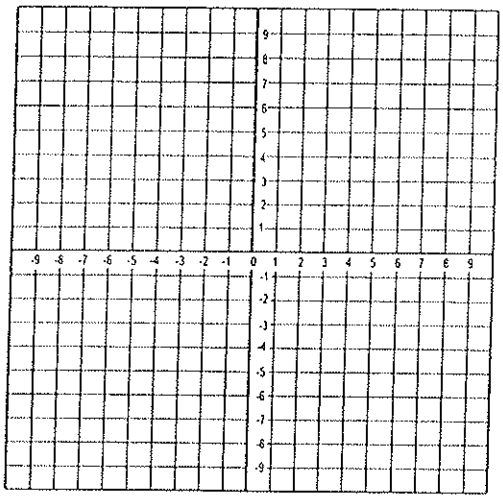
Review Worksheet

HW Assignment #38

I. Solve each quadratic equation by graphing. (Label your AOS on the graph.)

a. $x^2 + x = 6$ b. $x^2 + 3 = 0$





II. Solve each quadratic equation by factoring.

a. $2x^2 = -6x$ b. $x^2 - 9 = 0$ c. $x^2 + 11x - 12 = 0$

d. $2x^2 + 3x - 1 = -2$ e. $x^2 - 11x + 24 = 0$ f. $x^2 - 10 = 3x$

Name: _____
Date: _____ Period: ____

Quadratic Formula Word Problems

1. Jason jumped off of a cliff into the ocean in Acapulco while vacationing with some friends. His height as a function of time could be modeled by the function $h(t) = -16t^2 + 16t + 480$, where t is the time in seconds and h is the height in feet.

   a. How long did it take for Jason to reach his maximum height?

   b. What was the highest point that Jason reached?

   c. Jason hit the water after how many seconds?

2. If a toy rocket is launched vertically upward from ground level with an initial velocity of 128 feet per second, then its height *h* after *t* seconds is given by the equation $h(t) = -16t^2 + 128t$ (if air resistance is neglected).

   a. How long will it take for the rocket to return to the ground?

   b. After how many seconds will the rocket be 112 feet above the ground?

   c. How long will it take the rocket to hit its maximum height?

   d. What is the maximum height?

Algebra 2 Name:_____

"Water Fountain Parabola Project" _____
Project Directions:

1. Choose a water fountain somewhere on the school campus.

2. Make a sketch of the water parabola (on plain paper) that forms when you turn on the water fountain.

3. Measure the height and width of the parabola in centimeters.

4. Draw the parabola on graph paper making sure to label the axis accurately. Make sure to accurately mark the vertex and zeros of the parabola with ordered pairs.

5. Choose points on the parabola and make a table of values for independent and dependent axis. (Remember NO x and y.)

6. Enter the independent and dependent values into the L1 and L2 lists on your calculator. Make a scatter diagram and find the equation of your parabola.

7. Make a sign (use $\frac{1}{2}$ poster board) to post by the fountain giving the information about the parabola formed. Include the equation, graph, table of values, max or min. values, intervals and at least 2 other facts about the parabola. Title your poster (be creative...). On the back of your poster, write the location of your water fountain. Be specific.

Use the following to collect your data. COMPLETE and hand in:

1. Our water fountain is located:_____

2. Attach original sketch to this worksheet.

3. Give list of values in a table form. Make sure to label axis on your project!

4. The equation of our parabola is:_____

5. The maximum/minimum value of our parabola is:_____.

6. List the intervals for your parabola:

   _____

   _____

7. Include sign on your poster. Make sure your names are on the front of the poster. Title your sign, using a clever math phrase....

You will be graded on accuracy and neatness. Creativity is good too!

Water Fountain Project Name:_____

Category	4	3	2	1	Extra	Points Earned
Poster	Poster is creative, has appropriate title and is presented in a neat manner.	One of the required elements is missing.	Two of the required elements of the poster are missing. Poster is not neat or lacks effort.	Poster lacks effort, creativity and/or is lacking major elements	Poster is amazing!	/4
Data	Data is displayed and has clear organization with appropriate labels.	Data is displayed but lacks appropriate labels.	Data is lacking one or more elements.	Data is not displayed appropriately.		/4
Graphs (x 2)	Graph(s) are neat, accurate and labeled correctly with appropriate units and axes are labeled correctly. Quadratic regression line is correctly drawn on final graph.	Graph(s) are neat and accurate. Axes are incorrectly labeled or missing units.	Original graph is missing. Graph(s) are not accurate, units are missing or axes are incorrectly labeled.	Graph(s) are inaccurate or are not drawn neatly or are mislabeled.		/8
Equations	Correct equations are used. All variables are defined. All work is shown.	Equations are mostly correct with some minor errors. Variables are not well defined.	Equations contain errors that lead to inaccurate quadratic equations. Improper labeling of units or variables.	Equations contain both major and minor errors. Quadratic Regression equation has either an error in units or direction.		/4
Intervals Maximum/ Minimum	Both intervals and maximum/minimum values are present with correct labels and values.	There is a minor error in either intervals or max/min values.	There are one or more errors in intervals or max/min values and labels are missing.	There are major errors in either the intervals or max/minimum values.		/4
Facts on Poster	Two or more additional distinct facts are contained on the poster	One additional distinct fact is contained on the poster.	There are facts on the poster; however, they are not distinct from the content of the poster.	There are no additional facts on the poster.		/4
Total Points						/28

13 Square Grid/Five millimeter units; One centimeter units