



5.5

# Algebra Agenda

Don't forget the last page!

				Stamp
Monday	3/23/2015	Objective:	Solving Quadratics by Factoring	
		Assignment:	Practice #1-13	
Tuesday	3/24/2015	Objective:	Solving by Square Roots	
		Assignment:	Practice #1-13	
Wednesday	3/25/2015	Objective:	Solving by Quadratic Formula	
		Assignment:	Practice #1-10	
Thursday	3/26/2015	Objective:	Solving by Graphing	
		Assignment:	Practice #1-12	
Friday	3/27/2015	Objective:	Quiz	
		Assignment:	5.5 Due Today	

# Bellwork

Week of \_\_\_\_\_ - \_\_\_\_\_

Name: \_\_\_\_\_

Period: \_\_\_\_\_

Monday

thursday

**Tuesday**

Friday

Wednesday

**CHALLENGE**

**Practice - Solving Quadratics by Factoring**

**pp 630-635**

Name \_\_\_\_\_

Date \_\_\_\_\_

Period \_\_\_\_\_

**Solve the equations below by factoring.**

1.  $(3x - 2)(4x - 3) = 0$

2.  $4x^2 - 12x + 9 = 0$

3.  $x^2 = 8x - 16$

4.  $12x^2 - 1 = -x$

5.  $x^2 + 2x = 15$

6.  $2x^2 = -4 - 6x$

**Given the roots find the quadratic equation.**

7.  $x : \{-3, 7\}$

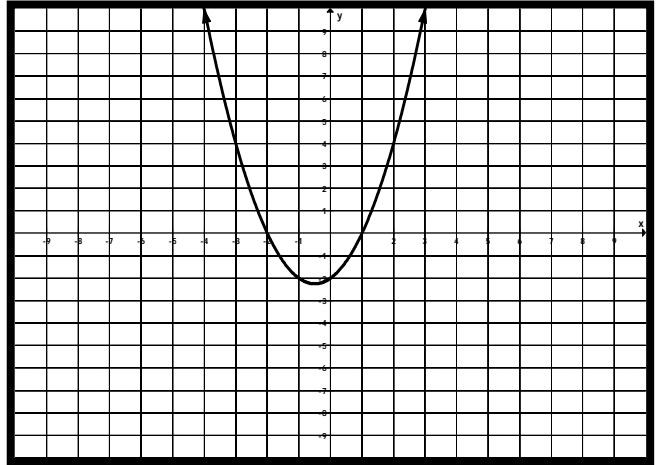
8.  $x : \left\{-\frac{2}{5}, 4\right\}$

## Algebra I – Unit 9: Topic 3 – Solving Quadratics by Factoring

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9. Which equation best represents the graph shown?

- A  $(x - 2)(x + 1) = y$
- B  $(x + 2)(x + 1) = y$
- C  $(x + 2)(x - 1) = y$
- D  $(x - 2)(x - 1) = y$



11. The area of a rectangular floor is described by the equation  $w(w - 9) = 252$  where  $w$  is the width of the floor in meters. What is the width of the floor?

12. A group of friends try to keep a beanbag from touching the ground without using their hands. Once the beanbag has been kicked, its height can be modeled by  $h = -16t^2 + 14t + 2$ , where  $h$  is the height in feet above the ground and  $t$  is the time in seconds. Find the time it takes the beanbag to reach the ground.

13. The length of a rectangle is 3 cm more than the width. The area is 70 square centimeters. Find the dimensions of the rectangle.

Name \_\_\_\_\_

Date \_\_\_\_\_

Period \_\_\_\_\_



“What do you call a funny book about eggs?”

1.  $x^2 = 81$

2.  $4x^2 - 18 = -9$

3.  $2x^2 + 7 = 207$

4.  $5 - x^2 = 20$

5.  $16x^2 + 10 = 131$

6.  $81x^2 + 17 = 81$

7.  $x^2 - 29 = 0$

8.  $-3x^2 + 200 = 8$

L.  $x = \pm \frac{2}{3}$

B.  $x = \pm \sqrt{29}$

O.  $x = \pm \frac{11}{4}$

K. No real solution

Y.  $x = \pm 8$

E.  $x = \pm \frac{8}{9}$

K.  $x = \pm 9$

A.  $x = \pm \frac{3}{2}$

S.  $x = \pm \frac{4}{11}$

O.  $x = \pm 10$

R.  $x = 100$

$\frac{\quad}{2}$      $\frac{\quad}{8}$      $\frac{\quad}{5}$      $\frac{\quad}{1}$      $\frac{\quad}{6}$      $\frac{\quad}{7}$      $\frac{\quad}{5}$      $\frac{\quad}{3}$      $\frac{\quad}{4}$

## Algebra I – Unit 9: Topic 2 – Solving Quadratics by Using Square Roots

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### Solve using square roots.

9.  $5(x - 1)^2 = 180$

10.  $16(x + 5)^2 = 1024$

11. Carter plans to wallpaper the longest rectangular wall in his living room. The wall is twice as long as it is high and has an area of 162 square feet. What is the height of the wall?
12. The height of a triangle is twice the length of its base. The area of the triangle is 50 square meters. Find the height and base to the nearest tenth of a meter.
13. Fenway Park is a Major League Baseball park in Boston, Massachusetts. The park offers seats on top of the left field wall. A person sitting in one of these seats accidentally drops his sunglasses on the field. The height,  $h$  (in feet), of the sunglasses can be modeled by the function  $h = -16t^2 + 38$  where  $t$  is the time (in seconds) since the sunglasses were dropped. Find the time it takes for the sunglasses to reach the field. Round your answer to the nearest hundredth of a second.

**Practice - Solving Quadratics Using the Quadratic Formula**

**pp 652-659**

Name \_\_\_\_\_

Date \_\_\_\_\_

Period \_\_\_\_\_

**Find the number of solutions for each equation using the discriminant. Show your work or draw the corresponding picture.**

1.  $2x^2 - x = 21$

2.  $5x^2 + 12x + 8 = 0$

3.  $x^2 + 25 = 10x$

4.  $4 = -16x^2 + 12x$

**Solve the equations below using the Quadratic Formula. Round solutions to the nearest hundredth, if necessary.**

5.  $4x^2 + 7x = 15$

6.  $10x^2 - 3x - 1 = 0$

**Solve the equations below using the Quadratic Formula. Round solutions to the nearest hundredth, if necessary.**

7.  $-z^2 + z = -14$

8.  $8h^2 + 8 = 6 - 9h$

9. A rectangle with an area of 91 square meters has dimension of  $(x+2)$  meters and  $(2x+3)$  meters. Solve for the dimensions of the rectangle. Round to the nearest tenth of a meter.
10. For the period 1990-2000, the amount of money,  $y$  (in billions of dollars) spent on advertising in the U.S. can be modeled by the function  $y = 0.93x^2 + 2.2x + 130$ , where  $x$  is the number of years since 1990. In what year was 164 billion dollars spent on advertising?



**Practice - Solving Quadratics by Graphing****pp 622-624**

Name \_\_\_\_\_

Date \_\_\_\_\_

Period \_\_\_\_\_

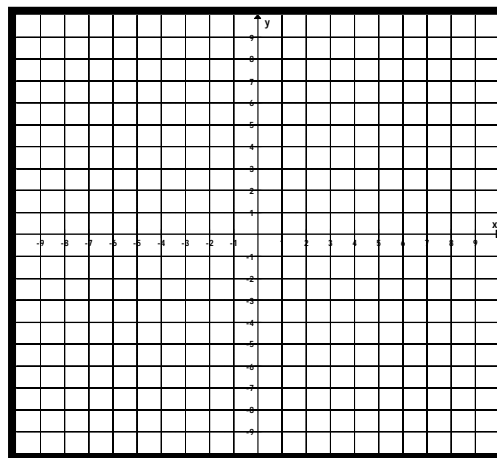
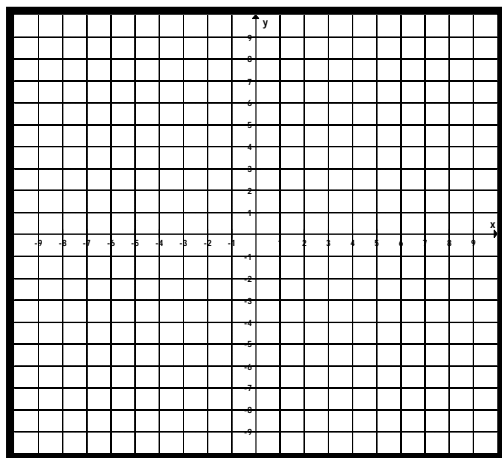
**Complete the table including the solution(s) of the quadratic. Then graph the quadratic equation.**

1.  $x^2 + 7x + 10 = 0$

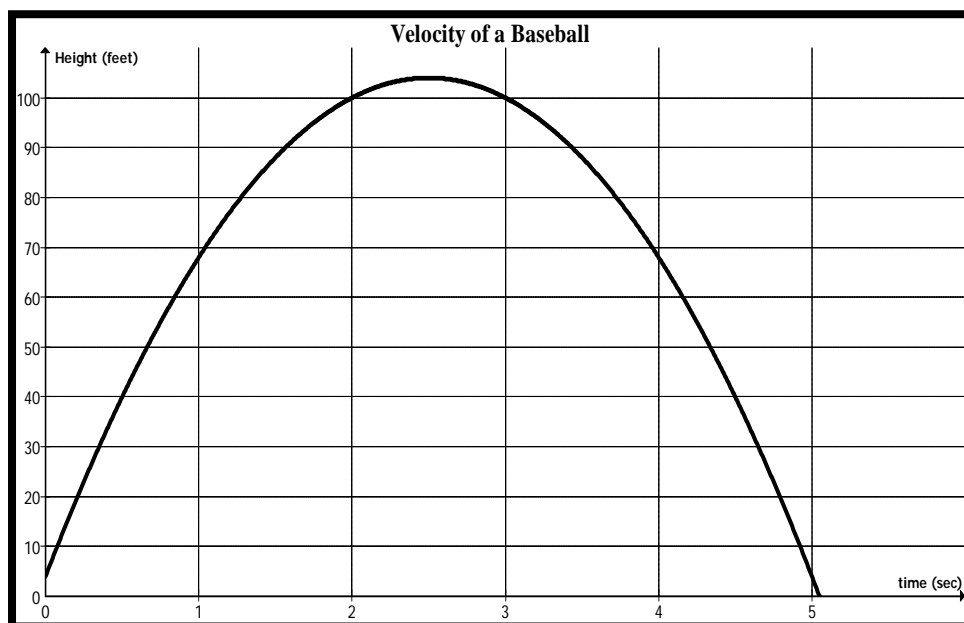
2.  $x^2 + 5x = -6$

$x$					
$y$					

$x$					
$y$					



3. A baseball coach uses a pitching machine to simulate pop flies during practice. The baseball is shot out of the pitching machine with a velocity of 80 feet per second. The quadratic function  $y = -16x^2 + 80x + 4$ , shown below, models the height of the baseball after  $x$  seconds.



A. Approximately, how long does the baseball stay in the air?

B. What is the maximum height that the baseball reaches?

# Algebra I – Unit 9: Topic 3 – Solving Quadratics by Graphing

Complete the information requested for each quadratic equation.

4.  $x^2 + 5x = 6$

5.  $x^2 - 18 = 7x$

6.  $5x^2 + 25x = 0$

Solution(s): \_\_\_\_\_

Root(s): \_\_\_\_\_

$x$ -intercepts(s): \_\_\_\_\_

Max/Min: \_\_\_\_\_

Max/Min: \_\_\_\_\_

Max/Min: \_\_\_\_\_

7.  $-x^2 - 10x = 25$

8.  $x^2 + 3 = 0$

9.  $9x = -x^2 - 18$

Root(s): \_\_\_\_\_

$x$ -intercepts(s): \_\_\_\_\_

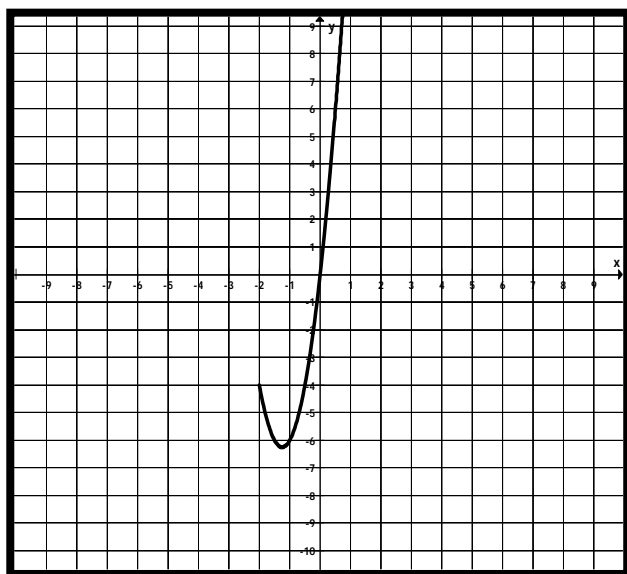
Zeros: \_\_\_\_\_

Vertex: \_\_\_\_\_

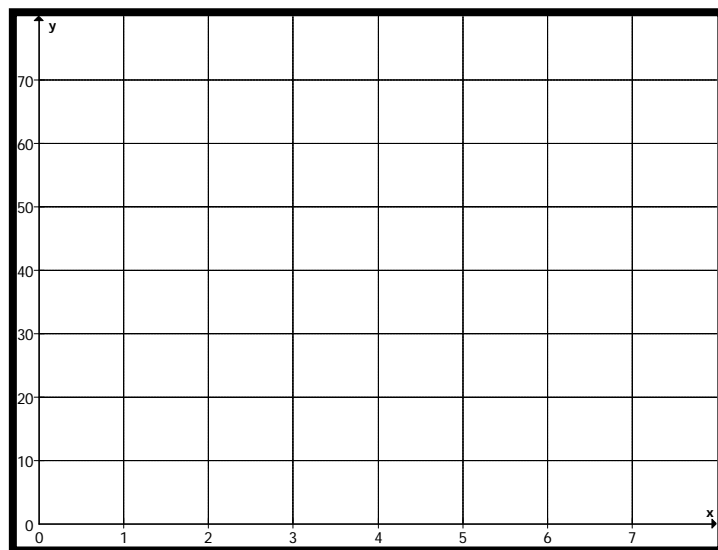
Vertex: \_\_\_\_\_

Vertex: \_\_\_\_\_

10. Part of the graph of a quadratic equation is shown below. If the line of symmetry for this quadratic equation is  $x = -1.25$ , between which two integers will the other part of the graph intersect the  $x$ -axis?



11. If a goalie kicks a soccer ball with an upward velocity of 65 feet per second and his foot meets the ball 3 feet off the ground, the function  $y = -16t^2 + 65t + 3$  represents the height of the ball  $y$  in feet after  $t$  seconds. Graph the function on the grid below.



12. Approximately how long is the ball in the air?

# Test Preparation Practice

## Algebra 1

**A.8.C** Interpret and determine the reasonableness of solutions to systems of linear equations.

**Solve each problem. Choose the best answer for each question and record your answer on the Student Answer Sheet. Figures are not drawn to scale**

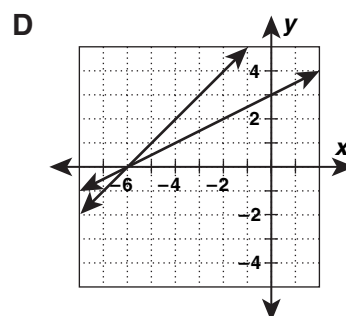
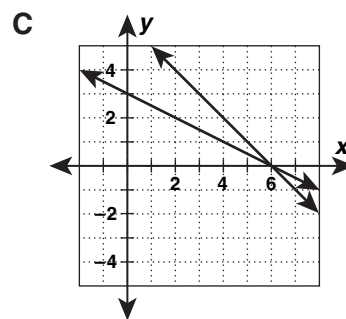
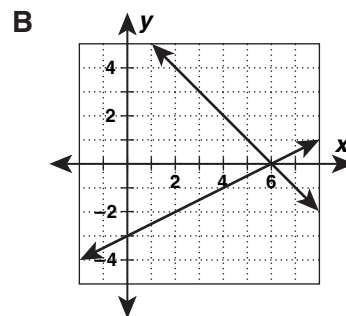
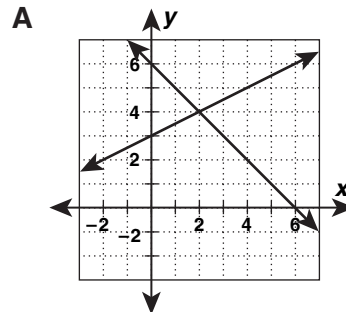
1. Video games cost \$34.99 each and DVD's cost \$19.99 each. If Ignacio has at most \$349.99 to spend, which combination of videos and DVD's is NOT a reasonable purchase for Ignacio?
  - A 5 videos; 6 DVDs
  - B 4 videos; 7 DVDs
  - C 7 videos; 4 DVDs
  - D 8 videos; 8 DVDs
  
2. Yard World is having a sale. Four dogwood trees and 3 maple trees cost \$297. Six dogwood trees and 4 maple trees cost \$432. What is the most reasonable statement about the trees?
 

4 dogwood + 3 maple = \$297
6 dogwood + 4 maple = \$432

  - F The dogwood trees cost less than the maple trees.
  - G The dogwood trees cost twice as much as the maple trees.
  - H The dogwood trees and maple trees cost the same.
  - J One dogwood tree cost more than \$65.

3. Which graph shows the most reasonable solution for the system?

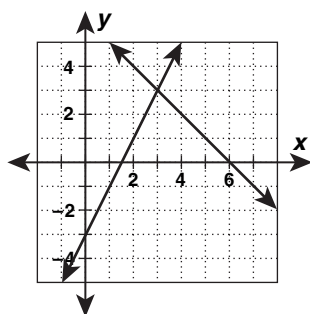
$$\begin{cases} x + y = 6 \\ x - 2y = -6 \end{cases}$$



4. Bagels cost \$6.99 per dozen and muffins cost \$7.50 per dozen. If Rita has at most \$75 to spend, which combination of bagels and muffins is NOT a reasonable purchase?

**F** 5 dozen bagels and 3 dozen muffins  
**G** 2 dozen bagels and 8 dozen muffins  
**H** 7 dozen bagels and 5 dozen muffins  
**J** 4 dozen bagels and 4 dozen muffins

5. The solution to the system  $\begin{cases} y = 2x - 3 \\ x + y = 6 \end{cases}$  is graphed below. What is the only reasonable solution to this system?



- A** (0, 0)  
**B** (3, 3)  
**C** (6, 0)  
**D** (1, 5)
6. Two cans of paint and one roller cost \$58. Three cans of the same paint and two rollers cost \$92. What is a reasonable price for the cost of a gallon of paint?
- F** \$20  
**G** \$21  
**H** \$22  
**J** \$24

7. All pants and shirts at a clothing company are on sale for half-price. Ophelia purchased 8 shirts and 4 pairs of pants and paid \$176. Her friend Yolanda purchased 3 shirts and 4 pairs of pants and paid \$116. What is the most reasonable price for a shirt?

**A** \$6  
**B** \$8  
**C** \$12  
**D** \$20

8. Graphing calculators are on sale for \$80 and digital cameras are on sale for \$150. Newton has \$2000 in which to purchase as many graphing calculators and digital cameras that he can afford. He wants to buy an equal number of each. Which combination of graphing calculators and digital cameras is NOT a reasonable purchase?

**F** 9 of each  
**G** 8 of each  
**H** 7 of each  
**J** 6 of each

9. Karen is looking at new stop watches and cones for the recreation soccer teams. She can purchase 3 stop watches and 4 sets of cones for \$80. She could also purchase 8 stop watches and 9 sets of cones for \$205. Based on this information, which is a reasonable statement?

**A** The cones cost 4 times as much as the stopwatches.  
**B** The stopwatches are cheaper than the cones.  
**C** The cones cost less than \$5.  
**D** The stopwatches cost 4 times as much as the cones.