

Solving Quadratics

agenda

Warm-Up

HW Check

Activity
(Parallel
Modeling)

HW: Practice
(1 page)

reminders

EOC Sim
TOMORROW!!

Quiz Friday

5.6 due Friday

Test next Friday!

warmup Wednesday))

1. The set of ordered pairs below represents some points on the graph of function f .

$\{(3,11), (-1, 3), (5,15), (-4,-3), (-7,-9)\}$

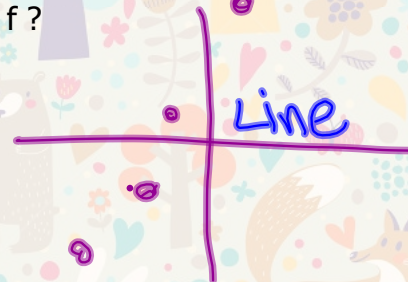
What is the parent function of f ?

☒ A. $y=x$

☐ B. $y=2^x$

☐ C. $y=x^2$

☐ D. $y=\sqrt{x}$



2. What is the vertex of the graph of the quadratic function $f(x) = x^2 + 6x + 10$?

min

$(-3, 1)$

Algebra Simulation

Freshmen (first time taking the Algebra I EOC)

You will be blocked for 1st, 2nd, and 3rd periods

THURSDAY!!!! Report to your testing room WITH A WORKING CALCULATOR at 8:55AM.

Take this test seriously. Try your best on every question - make educated guesses on ones you are unsure about.

You will then have a normal day and attend 4th, 5th, 6th, and 7th as scheduled. Go to your normal lunch!

Upperclassmen (you have taken the Algebra I EOC previously)

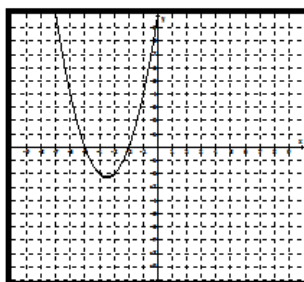
You ARE NOT BLOCKED. Report to all your classes as normal.

If you have 1st, 2nd, or 3rd period Algebra I you will go to the library and work on something quietly and productively.

Homework Check

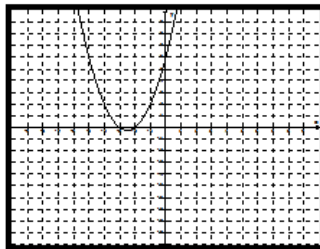
1.

x	-5	-4	-3	-2	-1
y	0	-2	-2	0	4



2.

x	-4	-3	-2	-1	0
y	2	0	0	2	6

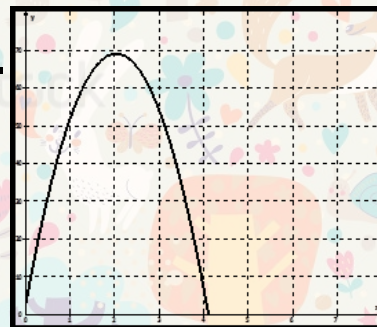


3. A. Approximately 5 seconds
B. 104 feet

4. Solutions $x\{-6, 1\}$ | Minimum $(-2.5, -12.25)$ 5. Solutions $x\{-2, 9\}$ | Maximum $(3.5, -30.25)$ 6. Solutions $x\{-5, 0\}$ | Minimum $(-2.5, -31.25)$ 7. Solution $x\{-5\}$ | Vertex $(-5, 0)$ 8. No real solution. Vertex $(0, 3)$ 9. Solutions $x\{-3, -6\}$ | Vertex $(-4.5, -2.25)$

10. Between -2 and -3

11.



12. 4.1 seconds

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

Practice - Solving Quadratics by Graphing

pp 622-624

Name _____ Date _____ Period _____

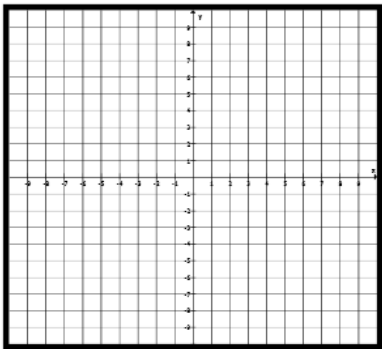
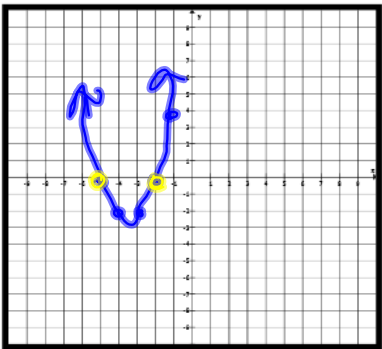
Complete the table including the solution(s) of the quadratic. Then graph the quadratic equation.

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

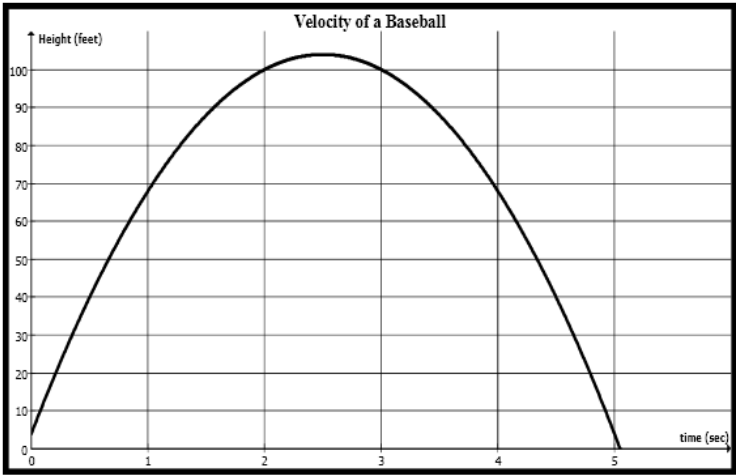
2. $x^2 + 5x = -6$

x	-5	-4	-3	-2	-1
y	0	-2	-2	0	4

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?

$$y_2 = 0$$

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): $\{-5, 0\}$

Max/Min: _____

Max/Min: _____

Max/Min: $(-2.5, -3.25)$

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

8. $x^2 + 3 = 0$

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

$$-x^2 - 10x - 25 = 0$$

one Root(s): -5
Vertex: $(-5, 0)$
max

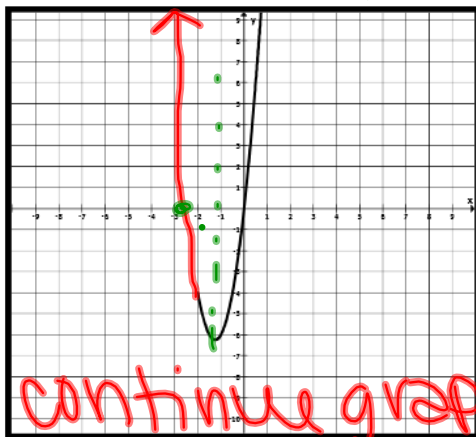
x-intercepts(s): _____

Zeros: _____

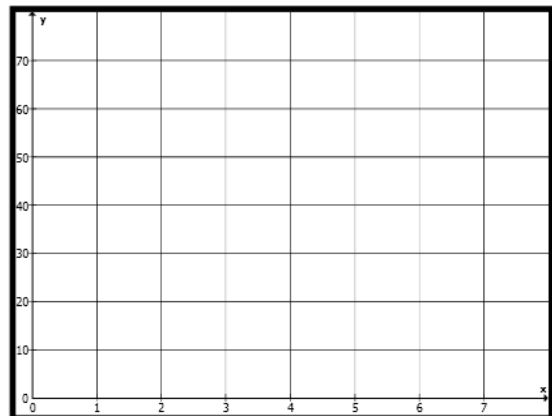
Vertex: _____

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?

Solving Quadratics

Parallel Modeling

I will work the problem on the left. We will develop a set of steps to solve this type of problem, then you will solve the problem on the right.

TEACHER

The length of a photograph is 1 cm less than twice the width. The area is 91 cm^2 . Find the width and the length.

$$l = 2w - 1 \quad A = lW$$

$$91 = (2w - 1)W$$

$$91 = 2W^2 - W$$

$$0 = 2W^2 - W - 91$$

graphing $\{ -6.5, 7 \}$

width: 7 cm / length: 13 cm

STEPS

1) Draw/label a picture.

2) Find formulas and plug in.

3) Solve for 0 (standard form)

4) Decide which method to solve (factor, quad formula, graph)

5) solve $y_2 = 0$

6) Check reasonableness

STUDENT

The length of a rectangle is 4 m more than the width. The area is 30 m^2 . Find the width and the length.

$$l = w + 4 \quad A = lW$$

$$30 = (w + 4)W$$

$$30 = W^2 + 4W$$

$$0 = W^2 + 4W - 30$$

$\{ -10, 3 \}$

width: 3.8 m / length: 7.8 m

Solving Quadratics

Now it's your turn! With your shoulder partner, you will repeat the process. Decide who is student A and student B.

You are responsible for your problem column AND the steps column. You and your partner should development a set of steps that can work to solve BOTH problems.



Solving Quadratics

Student A	STEPS	Student B
<p>2. Find the roots of $x^2 + 3x - 10 = 0$.</p>	<p>CALCULATOR</p> <p>① Solve for 0</p> <p>② Put in $y_1 =$ $y_2 = 0$</p> <p>③ Graph</p> <p>④ 2nd TRACE</p> <p>cursor to x-int enter enter enter</p> <p>⑤ repeat</p>	<p>2. Find the solutions of $x^2 - 5x - 24 = 0$.</p>
<p>3. Find the solutions of $4x^2 + 1 = -9x$</p>		<p>3. Find the solutions of $5x^2 = 2x + 18$</p>
<p>4. An object is launched at 19.6 meters per second from a 58.8 meter tall platform. The equation for the object's height y, at time t seconds after launch is $y(t) = -4.9t^2 + 19.6t + 58.8$, where s is in meters. When does the object strike the ground?</p>		<p>4. When an object is thrown upwards on Mars, the equation for the object's distance in feet, d, in terms of time in seconds, t, is $d(t) = -49t^2 + 147t$. How long does it take for an object thrown on Mars to return to the surface?</p>

make good choices in life!

5.6 Due Friday!!

Practice - Solving Quadratics

Name _____

Date _____

pp 652-659

Period _____

Solve the equations below. Round solutions to the nearest hundredth, if necessary.
State which method you used to solve.

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

5. $x(x + 5) = y$

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

6. $x^2 - 5x = 0$

3. $(x - 5)^2 = 100$

7. $0 = x^2 + 12$

4. $0 = x^2 - 4$

8. $-3.2x^2 - x + 10 = y$

9. Given $y = 2x^2 - 6x - 8$, find the following information below.

- Line of symmetry: _____
- Min/Max vertex: _____
- Solution(s): _____
- Graph the quadratic.
- Domain: _____ Range: _____

