

UNIT 2 REVIEW

Name: _____ Hr. _____

2.1For Questions 1 and 2, find the y -intercept, axis of symmetry, and vertex of the parabola.

1. $f(x) = -x^2 - 2x + 2$

2. $f(x) = 2x^2 - 4x + 3$

 y -intercept: 2 y -intercept: 3axis of symmetry: $x = -1$ axis of symmetry: $x = 1$ vertex: $(-1, 3)$ vertex: $(1, 1)$

For Questions 3 and 4, determine whether each function has a maximum or minimum value. Then find the maximum or minimum value of each function.

3. $f(x) = 3x^2 - 3x + 1$

4. $f(x) = -6x^2 + 12x + 21$

min

max

.2527

5. The height h of a baseball t seconds after being hit is given by $h(t) = -16t^2 + 80t + 3$.

a) What is the maximum height that the baseball reaches?

5a. 103 feet

b) When does this occur?

5b. 2.50 seconds

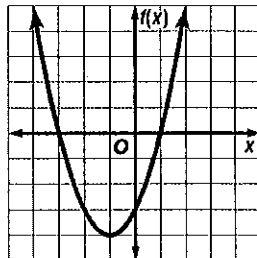
6. Which function is graphed?

A. $f(x) = x^2 - 2x - 3$

B. $f(x) = x^2 + 2x - 3$

C. $f(x) = x^2 + x - 3$

D. $f(x) = (x - 3)^2$



2.2

For Questions 7-10, identify the vertex, axis of symmetry, and the direction of opening.

7. $y = -6(x + 2)^2 - 1$

Vertex: $(-2, -1)$

Axis: $x = -2$

Direction: down

8. $y = 3(x + 5)^2$

Vertex: $(-5, 0)$

Axis: $x = -5$

Direction: up

9. $y = 3x^2 - 6x + 5$

Vertex Form Equation: $y = 3(x - 1)^2 + 2$

Vertex: $(1, 2)$

Axis: $x = 1$

Direction: up

10. $y = 2x^2 + 16x + 29$

Vertex Form Equation: $y = 2(x + 4)^2 - 3$

Vertex: $(-4, -3)$

Axis: $x = -4$

Direction: Up

11. Write an equation for the parabola with vertex at $(-5, 7)$ and passes through the point $(-3, 1)$.

$y = a(x + 5)^2 + 7$

$-1 = a(-3 + 5)^2 + 7$

$-1 = 4a + 7$
 $-7 = 4a + 7 - 7$
 $-7 = 4a$

$4a = -8$ $a = -2$

$y = -2(x + 5)^2 + 7$

$y = -2(x^2 + 10x + 25) + 7$

$y = -2x^2 - 20x - 50 + 7$

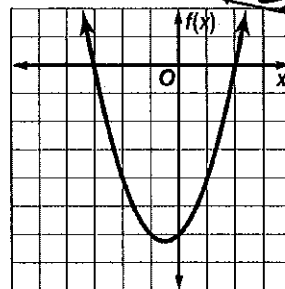
$y = -2x^2 - 20x - 43$

x	x^2	$5x$
-3	9	-15
-5	25	-25

2.3

12. Use the related graph for $f(x) = x^2 + x - 6$ to determine the solutions of $x^2 + x - 6 = 0$.

$2 + -3$



13. Use a quadratic equation to find two real numbers that satisfy the situation, or show that no such numbers exist. Their sum is 5 and their product is -36.

(-4, 9)

$$x + y = 5$$

$$x \cdot y = -36$$

$$x + y = 5$$

$$\begin{array}{r} -y \\ -y \end{array}$$

$$x = 5 - y$$

$$(5 - y)y = -36$$

$$5y - y^2 = -36$$

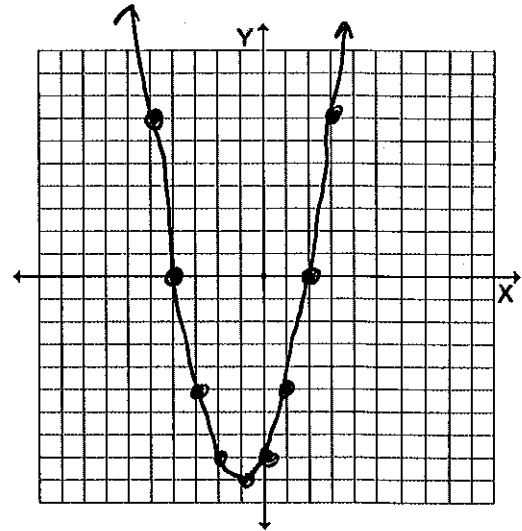
$$\begin{array}{r} -5y + y^2 \\ +y^2 - 5y \end{array} \quad \begin{array}{r} -36 \\ -36 \end{array}$$

$$0 = y^2 - 5y - 36$$

For Questions 14 and 15, solve each equation by Graphing. If exact roots cannot be found, use a graphing calculator to approximate them.

14. $x^2 + 2x - 8 = 0$

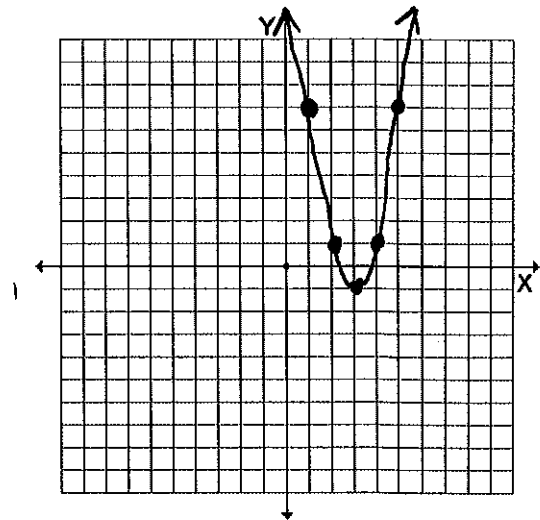
x	y
-3	-5
-2	-8
-1	-9
0	-8
1	-5



Solution(s): 2, -4

15. $2x^2 - 12x + 17 = 0$

x	y
1	7
2	1
3	-1
4	1
5	7



Solution(s): 2.29, 3.71