

59. $\sqrt{18m^2}$ $3m\sqrt{2}$
 $\underbrace{\quad}_{9 \cdot 2}$

60. $-\sqrt{128d}$ $-8\sqrt{2d}$
 $\underbrace{\quad}_{64 \cdot 2}$

61. $3\sqrt{5} - 8\sqrt{7} + 2\sqrt{5} - \sqrt{3}$
 $5\sqrt{5} - 8\sqrt{7} - \sqrt{3}$

62. $\sqrt{48} - \sqrt{27} + 3\sqrt{3}$
 $\underbrace{\quad}_{16 \cdot 3}$ $\underbrace{\quad}_{9 \cdot 3}$
 $4\sqrt{3} - 3\sqrt{3} = \sqrt{3}$

63. $\sqrt{200} + \sqrt{102}$
 ~~$\underbrace{\quad}_{70 \cdot 10}$~~ $\underbrace{\quad}_{81 \cdot 2}$
 ~~$\underbrace{\quad}_{4.5 \cdot 2.5}$~~ $9\sqrt{2}$
 $25 \cdot 8$
 $4 \cdot 2$

$5 \cdot 2\sqrt{2}$
 $10\sqrt{2} + 9\sqrt{2} = 19\sqrt{2}$

~~HW pg. 283 #17-28~~

~~HW pg. 283 #17-28~~

NOTES: pg. 282 #13 & 15

13. $\frac{3x^2}{3} = \frac{12}{3}$
 $\sqrt{x^2} = \sqrt{4}$
 $x = 2$

15. $(\sqrt{2x})^2 = (18)^2$
 $\frac{2x}{2} = \frac{324}{2}$
 $x = 162$

4-3B Practice

Name _____

Date _____

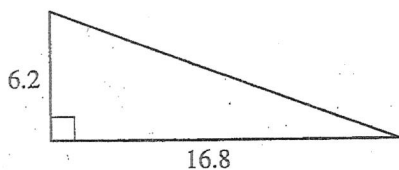
Decide whether each square root is rational or irrational. If it is rational, give its value.

1. $\sqrt{\frac{4}{18}}$ _____ 2. $\sqrt{\frac{9}{4}}$ _____

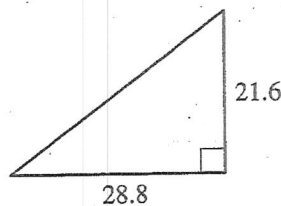
3. $-\sqrt{49}$ _____ 4. $\sqrt{\frac{32}{50}}$ _____

Use the Pythagorean Theorem to find the length of the hypotenuse of each right triangle. Is this length rational or irrational?

5. _____



6. _____



Simplify each expression. Check your work by comparing the decimal equivalent of the initial expression to your answer.

7. $\sqrt{50}$ _____ 8. $\sqrt{567}$ _____

9. $-\sqrt{4000}$ _____ 10. $\sqrt{\frac{32}{243}}$ _____

Solve each equation.

11. $3x^2 = 49$ _____ 12. $\sqrt{x} = 42$ _____

13. $\sqrt{5x} = 27$ _____ 14. $16x^2 = 49$ _____

Simplify each expression.

15. $\sqrt{3}\sqrt{4}\sqrt{5}$ _____ 16. $3\sqrt{5} - 8\sqrt{5}$ _____

17. $\frac{\sqrt{18}}{\sqrt{24}}$ _____ 18. $\sqrt{63h} + \sqrt{28h}$ _____

19. $\sqrt{(x+2)^2}$ _____ 20. $\sqrt{25t^4}$ _____

21. A pendulum has length 43 ft $2\frac{1}{2}$ in. Calculate the length of time (t) in seconds that it takes the pendulum to make one complete swing. Use $t = 2\pi\sqrt{\frac{L}{384}}$, where L is the length of the pendulum in inches. _____

DAILY LESSON PLAN

Week of: April 1, 2007	Date 4/4/07	Grade 11	Subject Alg II MATH			
General Topic: Today's Topic: <i>Imaginary & complex numbers</i>						
Expected Student Learning Outcomes <u>What will students know and be able to do as a result of today's lesson?</u> <i>To define and use imaginary numbers and complex numbers.</i>						
Standards Addressed: <u>Which learning standard from the MA Frameworks or WPS curriculum does today's lesson address?</u> 1. Number Sense 3. Geometry & Measurement 2. Patterns, Relations & Functions 4. Statistics & Probability						
School Improvement Plan <u>Which (if any) literacy strategy does today's lesson address?</u> LEARN TO READ/READ TO LEARN						
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%; border-right: 1px solid black; padding: 5px;"> Pre-Reading <input type="checkbox"/> Preview Text <input type="checkbox"/> Ask Questions <input type="checkbox"/> Activate Prior Knowledge </td> <td style="width: 33%; border-right: 1px solid black; padding: 5px;"> Guided Reading <input type="checkbox"/> Make connections <input type="checkbox"/> Visualize <input type="checkbox"/> Think aloud strategy </td> <td style="width: 33%; padding: 5px;"> Post Reading <input type="checkbox"/> Low Stakes Writing <input type="checkbox"/> Projects <input type="checkbox"/> Presentations </td> </tr> </table> <hr style="border-top: 1px dashed black;"/> LEARN TO WRITE/WRITE TO LEARN <input type="checkbox"/> "I wonder" log entries <input type="checkbox"/> Letters <input type="checkbox"/> Metacognitive Logs <input type="checkbox"/> Exit slips <input type="checkbox"/> 2 Column notes				Pre-Reading <input type="checkbox"/> Preview Text <input type="checkbox"/> Ask Questions <input type="checkbox"/> Activate Prior Knowledge	Guided Reading <input type="checkbox"/> Make connections <input type="checkbox"/> Visualize <input type="checkbox"/> Think aloud strategy	Post Reading <input type="checkbox"/> Low Stakes Writing <input type="checkbox"/> Projects <input type="checkbox"/> Presentations
Pre-Reading <input type="checkbox"/> Preview Text <input type="checkbox"/> Ask Questions <input type="checkbox"/> Activate Prior Knowledge	Guided Reading <input type="checkbox"/> Make connections <input type="checkbox"/> Visualize <input type="checkbox"/> Think aloud strategy	Post Reading <input type="checkbox"/> Low Stakes Writing <input type="checkbox"/> Projects <input type="checkbox"/> Presentations				
<input checked="" type="checkbox"/> Solve problems using linear equations/inequalities <input checked="" type="checkbox"/> Apply algebraic and graphical methods to solutions						
Outline of Lesson Activities: (to be posted on classroom agenda) <i>SAT Question Correct HW pg. 285 # 53-58 & 64-70 (20min) Notes: Define imaginary & complex #'s. Examples: 1. simplifying expressions with imaginary #'s. (pg. 286) 2. simplifying expressions with complex #'s (pg. 287) Do pg. 289 # 9-27 odd w/ class. (10min) Group work: worksheet. (30min) DISCUSS: (20min) HW: pg. 289 # 8-28 ev.</i>						
Assessment: <u>How will you assess students' understanding of today's lesson?</u> Test - Quiz - Verbal Questioning - Group Work - Homework (written or reading) - Project Presentation - Portfolios - Other :						

*Notes
(10min)
#s (pg. 287)*

$$\begin{aligned} (53) \quad \frac{5x^2}{5} &= \frac{125}{5} \\ \sqrt{x^2} &= \sqrt{25} \\ x &= 5 \text{ or } -5 \end{aligned}$$

$$\begin{aligned} (54) \quad (\sqrt{x})^2 &= (7)^2 \\ x &= 49 \end{aligned}$$

$$\begin{aligned} (55) \quad (\sqrt{3x})^2 &= (27)^2 \\ \frac{3x}{3} &= \frac{729}{3} \\ x &= 243 \end{aligned}$$

$$\begin{aligned} (56) \quad \frac{4x^2}{4} &= \frac{64}{4} \\ \sqrt{x^2} &= \sqrt{16} \\ x &= 4 \text{ or } -4 \end{aligned}$$

$$\begin{aligned} (57) \quad (\sqrt{x})^2 &= (19)^2 \\ x &= 361 \end{aligned}$$

$$\begin{aligned} (58) \quad (\sqrt{5x})^2 &= (20)^2 \\ \frac{5x}{5} &= \frac{400}{5} \\ x &= 80 \end{aligned}$$

$$(64) \quad \sqrt{(y+5)^2} = y+5$$

$$(65) \quad \frac{\sqrt{45}}{\sqrt{5}} = \sqrt{\frac{45}{5}} = \sqrt{9} = 3$$

$$(66) \quad \frac{28\sqrt{96}}{7\sqrt{6}} = \frac{28}{7} \sqrt{\frac{96}{6}} = 4\sqrt{16} = 4 \cdot 4 = 16$$

$$\begin{aligned} (67) \quad \sqrt{21} \sqrt{3} &= \sqrt{84} \\ \frac{\sqrt{84}}{\sqrt{3}} &= \sqrt{\frac{84}{3}} \\ \sqrt{28} &= \sqrt{4 \cdot 7} \\ 2\sqrt{7} &= 2\sqrt{7} \\ 3\sqrt{7} - 2\sqrt{7} &= \sqrt{7} \end{aligned}$$

$$\begin{aligned} (68) \quad \sqrt{18} - \sqrt{50} + 8\sqrt{2} &= 9\sqrt{2} - 5\sqrt{2} + 8\sqrt{2} \\ 3\sqrt{2} - 5\sqrt{2} + 8\sqrt{2} &= -2\sqrt{2} + 8\sqrt{2} = 6\sqrt{2} \end{aligned}$$

Notes: imaginary #'s: The square roots of negative numbers.

It is represented by $i = \sqrt{-1}$

example (1) $\sqrt{-18}$ (2) $-2i(\sqrt{-7})$

$$\begin{array}{c} \sqrt{-18} \\ \underbrace{\quad\quad}_9 \underbrace{\quad\quad}_2 \cdot -1 \\ = 3i\sqrt{2} \end{array}$$

$$\begin{array}{c} -2i(\sqrt{-7}) \\ \underbrace{\quad\quad}_i \cdot \underbrace{\quad\quad}_7 \\ -2i \cdot i \sqrt{7} \\ -2i^2 \sqrt{7} = 2\sqrt{7} \end{array}$$

(3) $\sqrt{-3} \sqrt{-5}$

$$\begin{array}{c} \sqrt{-3} \sqrt{-5} \\ \underbrace{\quad\quad}_3 \cdot -1 \quad \underbrace{\quad\quad}_5 \cdot -1 \\ i\sqrt{3} \quad i\sqrt{5} = i^2 \sqrt{15} \\ -\sqrt{15} \end{array}$$

$i^2 = -1$

Try It:

a.

$$\begin{array}{c} \sqrt{-50} \\ \underbrace{\quad\quad}_{25} \cdot \underbrace{\quad\quad}_2 \cdot -1 \\ 5i\sqrt{2} \end{array}$$

b.

$$\begin{array}{c} \sqrt{-6} \sqrt{-8} \\ \underbrace{\quad\quad}_{\cancel{6}} \cdot -1 \quad \underbrace{\quad\quad}_4 \cdot \underbrace{\quad\quad}_2 \cdot -1 \\ i\sqrt{6} 2i\sqrt{2} \end{array}$$

$$\begin{array}{c} 2i^2 \sqrt{12} \\ \underbrace{\quad\quad}_3 \cdot \underbrace{\quad\quad}_4 \\ 4i^2 \sqrt{3} \\ \underbrace{\quad\quad}_{-1} \\ = -4\sqrt{3} \end{array}$$

c. $9i \cdot 6i \sqrt{-\frac{1}{4}}$

$$\begin{array}{c} 54i^2 \cdot \frac{\sqrt{1}}{\sqrt{4}} \\ \frac{27}{-54} \frac{1}{2} i = -27i \end{array}$$

7-2A Practice

Name _____

Date _____

If the expression has a fractional exponent, rewrite it using a radical. If the expression has a radical, rewrite it using exponents.

1. $3^{\frac{1}{4}}$ _____ 2. $7^{\frac{2}{3}}$ _____

3. $\sqrt[5]{12}$ _____ 4. $\sqrt[3]{z^5}$ _____

5. $(3+x)^{-\frac{3}{4}}$ _____ 6. $(2xy)^{\frac{1}{2}}$ _____

7. $\sqrt[4]{(3pq)^5}$ _____ 8. $\sqrt[3]{x^2y^3}$ _____

9. $(y^2)^{\frac{5}{7}}$ _____ 10. $(3ab^2)^{\frac{2}{3}}$ _____

11. $\sqrt{ab^3}$ _____ 12. $(\sqrt[3]{xy^2z^3})^6$ _____

If $x < 0$, tell whether the principal roots for each expression is positive, negative, or does not exist.

13. $\sqrt[4]{x}$ _____ 14. $\sqrt[6]{x^4}$ _____

15. $\sqrt[5]{x^3}$ _____ 16. $x^{\frac{2}{3}}$ _____

17. $x^{\frac{7}{5}}$ _____ 18. $x^{\frac{3}{8}}$ _____

Evaluate each expression.

19. $27^{\frac{2}{3}}$ _____ 20. $64^{-\frac{5}{3}}$ _____

21. $\sqrt[4]{81}$ _____ 22. $\sqrt[3]{343}$ _____

23. $16^{\frac{5}{4}}$ _____ 24. $(-27)^{\frac{4}{3}}$ _____

25. $81^{\frac{3}{2}}$ _____ 26. $25^{-\frac{5}{2}}$ _____

27. $8^{\frac{7}{3}}$ _____ 28. $81^{\frac{7}{4}}$ _____

Simplify each expression.

29. $(x^{\frac{4}{3}})^{\frac{3}{4}}$ _____ 30. $(p^{\frac{2}{3}})^{\frac{1}{2}}$ _____

31. $\sqrt[3]{(125)^2}$ _____ 32. $\sqrt[4]{\sqrt[3]{x}}$ _____

33. $\frac{3^{\frac{2}{3}}}{4^{\frac{1}{4}}}$ _____ 34. $\sqrt[8]{(-2)^4}$ _____

35. $\sqrt[5]{x^{\frac{3}{4}}}$ _____ 36. $(25^{\frac{3}{2}})^{-\frac{1}{3}}$ _____

37. $\frac{6^{\frac{1}{2}}}{6^{\frac{2}{3}}}$ _____ 38. $\frac{8^{-\frac{1}{3}}}{8^{\frac{5}{3}}}$ _____

4-3C Practice

Name _____

Date _____

Express each imaginary number in terms of i .

1. $\sqrt{-3}$ $i\sqrt{3}$ 2. $\sqrt{-1600}$ $40i$
 3. $\sqrt{-600}$ $10i\sqrt{6}$ 4. $\sqrt{-\frac{4}{9}}$ $\frac{2}{3}i$

Simplify each expression.

5. $\sqrt{-\frac{25}{64}}$ $\frac{5}{8}i$ 6. $\sqrt{-\frac{46}{49}}$ $i\sqrt{\frac{46}{49}}$ or $\frac{2\sqrt{23}}{7}i$
 7. $\sqrt{-75}$ $5i\sqrt{3}$ 8. $\sqrt{-225}$ $15i$
 9. $(3+2i) + (4-6i)$ $7-4i$ 10. $(6-3i) - (4+2i)$ $2-5i$
 11. i^5 $i^2 \cdot i^2 \cdot i = -1 \cdot -1 \cdot i = i$ 12. $-i^8$ $-1 \cdot i^2 \cdot i^2 \cdot i^2 \cdot i^2 = -1$
 13. $(3+2i)(6-3i)$ $18-9i+12i-6i^2 = 3i+24$ 14. $(4+2i)(4-2i)$ _____
 15. $(7+3i)^2$ _____ 16. $4i\sqrt{-75}$ _____
 17. $(2i)^3$ $8i^3 = i^2 \cdot i = -8i$ 18. $\sqrt{-4}\sqrt{-9}$ _____
 19. $(-7i)(-3i)$ $21i^2$ 20. $4i^3 - 3i^2 + 7i - 1$ _____

Give the additive inverse of each complex number. *change the signs / what you add to each eq. to get 0.*

21. $3 - 2i$ _____ 22. $-4 + i$ _____
 23. $17i$ _____ 24. $-42i$ _____
 25. $17 + 15i$ _____ 26. $-4 - 7i$ _____

27. Give the voltage in an electric heater if the current is $(10 + 2i)$ amps and the impedance is $(9 - 4i)$ ohms. _____

28. The function $f(z) = -2z + (2 - 3i)$ is to be iterated, that is, evaluated repeatedly using each output value or *iterate* as the next input value.
 a. Find $f(z)$ for the initial value $z = 3 + 4i$. _____
 b. Find $f(z)$ for z equal to the value you obtained for $f(z)$ in a. _____
 c. Find the next two iterates of $f(z)$. _____

29. The function $f(z) = z^2$ is to be iterated.
 a. Find $f(z)$ for the initial value $z = 3 - 2i$. _____
 b. Find the next two iterates of $f(z)$. _____

DAILY LESSON PLAN

Week of: April 8, 2007	Date 4/9/07	Grade 11	Subject Algebra II MATH			
General Topic: Today's Topic:	Quadratic Functions Investigating Quadratic Functions					
Expected Student Learning Outcomes	What will students know and be able to do as a result of today's lesson? To understand the Quadratic functions and the characteristics of parabolas.					
Standards Addressed:	Which learning standard from the MA Frameworks or WPS curriculum does today's lesson address? 1. Number Sense 2. Patterns, Relations & Functions 3. Geometry & Measurement 4. Statistics & Probability					
School Improvement Plan	Which (if any) literacy strategy does today's lesson address? LEARN TO READ/ READ TO LEARN <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%; border-right: 1px solid black; padding: 5px;"> Pre-Reading <input checked="" type="checkbox"/> Preview Text <input checked="" type="checkbox"/> Ask Questions <input type="checkbox"/> Activate Prior Knowledge </td> <td style="width: 33%; border-right: 1px solid black; padding: 5px;"> Guided Reading <input checked="" type="checkbox"/> Make connections <input checked="" type="checkbox"/> Visualize <input checked="" type="checkbox"/> Think aloud strategy </td> <td style="width: 33%; padding: 5px;"> Post Reading <input type="checkbox"/> Low Stakes Writing <input type="checkbox"/> Projects <input type="checkbox"/> Presentations </td> </tr> </table> <hr style="border-top: 1px dashed black;"/> LEARN TO WRITE/ WRITE TO LEARN <input type="checkbox"/> "I wonder" log entries <input type="checkbox"/> Exit slips <input type="checkbox"/> Letters <input type="checkbox"/> 2 Column notes <input type="checkbox"/> Metacognitive Logs <input checked="" type="checkbox"/> Solve problems using linear equations/inequalities <input checked="" type="checkbox"/> Apply algebraic and graphical methods to solutions			Pre-Reading <input checked="" type="checkbox"/> Preview Text <input checked="" type="checkbox"/> Ask Questions <input type="checkbox"/> Activate Prior Knowledge	Guided Reading <input checked="" type="checkbox"/> Make connections <input checked="" type="checkbox"/> Visualize <input checked="" type="checkbox"/> Think aloud strategy	Post Reading <input type="checkbox"/> Low Stakes Writing <input type="checkbox"/> Projects <input type="checkbox"/> Presentations
Pre-Reading <input checked="" type="checkbox"/> Preview Text <input checked="" type="checkbox"/> Ask Questions <input type="checkbox"/> Activate Prior Knowledge	Guided Reading <input checked="" type="checkbox"/> Make connections <input checked="" type="checkbox"/> Visualize <input checked="" type="checkbox"/> Think aloud strategy	Post Reading <input type="checkbox"/> Low Stakes Writing <input type="checkbox"/> Projects <input type="checkbox"/> Presentations				
Outline of Lesson Activities: (to be posted on classroom agenda)	SAT Notes: 1. general form of a quadratic 2. vertex of quadratic 3. line of symmetry examples: pg. 309 Try It pg. 312 #1-4, 7-13 group work: pg. 314 pg. 33-51 Correct HW: pg. 312 WORKSHEET # 1-16					
Assessment:	How will you assess students' understanding of Test - Quiz - Verbal Questioning - Group Work - Homework Project Presentation - Portfolios - Other:					

• general form $ax^2 + bx + c$
 • graphing them (Monday)
 • identify vertex
 • identify max/min.

April 9, 2007
Algebra II

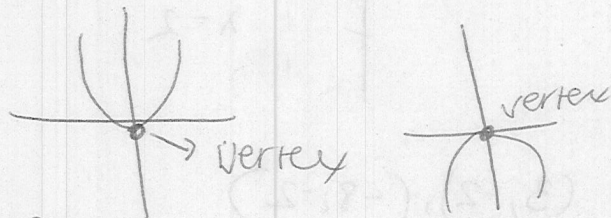
Notes: * (Must Have x^2)

○ **general form** of a quadratic function = $ax^2 + bx + c$

- just adding one more term to our previous linear equation. $y = mx + b$ ← example
 $\approx ax + b$ - lines

Quadratic: has max or min. - Quadratic functions create graphs known as parabolas.

Linear - there is a constant change in the y-value for each change of x.

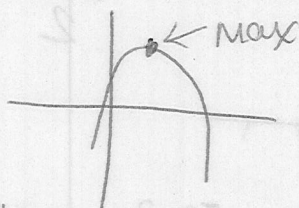


- vertex = Turning point of parabola

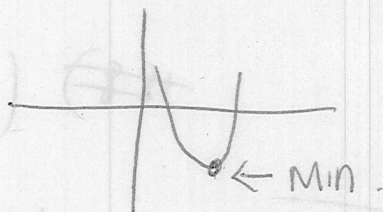
- line of symmetry = x value of the vertex.

The vertical line that passes through the vertex

Maximum value vertex: when the parabola opens down



Minimum " " : when the parabola open upwards



Reflection points: ~~the vertex and the reflection point~~ The point that is in the same point
vertex = $(1, 1)$ $(0, 3)$

$$V = (0, 0) \quad P(3, 4)$$

line of symmetry = $x = 0$

3rd pt. must be $y = 4$

3 spaces to the left of vertex

$$(-3, 4)$$

12 $V(2, 3) \quad P(-1, 6)$

line of sym. = $x = 2$

$$y = 6$$

point is 3 spaces to left of sym.

so 2nd pt must be 3 spaces to the right

$$x = 5$$

$$(5, 6)$$

13. $V(-2, 4) \quad P(1.5, -8)$

line of sym. = $x = -2$

3.5 (to the right (spaces))

so new pt is 3.5 spaces to the left

$$(-5.5, -8)$$

Daily Lesson Plan

Week of:	Date:	Grade:	Subject:												
April 8, 2007	4/10/07	11	Alg. II MATH												
General Topic:	Quadratic Functions														
Today's Topic:	sketching Quadratic translations														
Expected Student Learning Outcomes	<u>What will students know and be able to do as a result of today's lesson?</u> Understand how the coefficients "a" effect the graph of $f(x) = ax^2$ and using translating to identify features and sketch graphs of Quadratic functions.														
Standards Addressed:	<u>Which learning standard from the MA Frameworks or WPS curriculum does today's lesson address?</u> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>1. Number Sense</p> <p>2. Patterns, Relations & Functions</p> </div> <div style="width: 45%;"> <p>3. Geometry & Measurement</p> <p>4. Statistics & Probability</p> </div> </div>														
School Improvement Plan	<u>Which (if any) literacy strategy does today's lesson address?</u> Learn to Read/ Read to Learn <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">Pre-Reading</td> <td style="width: 33%;">Guided Reading</td> <td style="width: 33%;">Post Reading</td> </tr> <tr> <td><input checked="" type="checkbox"/> Preview Text</td> <td><input checked="" type="checkbox"/> Make Connections</td> <td><input type="checkbox"/> Low Stakes Writing</td> </tr> <tr> <td><input checked="" type="checkbox"/> Ask Questions</td> <td><input checked="" type="checkbox"/> Visualize</td> <td><input type="checkbox"/> Projects</td> </tr> <tr> <td><input checked="" type="checkbox"/> Activate Prior Knowledge</td> <td><input checked="" type="checkbox"/> Think Aloud Strategy</td> <td><input type="checkbox"/> Presentations</td> </tr> </table> <hr/> Learn to Write/Write to Learn <input type="checkbox"/> "I wonder" log entries <input type="checkbox"/> Letters <input type="checkbox"/> Metacognitive Logs <input type="checkbox"/> Exit slips <input type="checkbox"/> 2 Column notes			Pre-Reading	Guided Reading	Post Reading	<input checked="" type="checkbox"/> Preview Text	<input checked="" type="checkbox"/> Make Connections	<input type="checkbox"/> Low Stakes Writing	<input checked="" type="checkbox"/> Ask Questions	<input checked="" type="checkbox"/> Visualize	<input type="checkbox"/> Projects	<input checked="" type="checkbox"/> Activate Prior Knowledge	<input checked="" type="checkbox"/> Think Aloud Strategy	<input type="checkbox"/> Presentations
Pre-Reading	Guided Reading	Post Reading													
<input checked="" type="checkbox"/> Preview Text	<input checked="" type="checkbox"/> Make Connections	<input type="checkbox"/> Low Stakes Writing													
<input checked="" type="checkbox"/> Ask Questions	<input checked="" type="checkbox"/> Visualize	<input type="checkbox"/> Projects													
<input checked="" type="checkbox"/> Activate Prior Knowledge	<input checked="" type="checkbox"/> Think Aloud Strategy	<input type="checkbox"/> Presentations													
Outline of Lesson Activities: (to be posted on classroom agenda)	SAT correct yesterday's classwork / hw (worksheet) Notes: How coefficients affects the graphs -ex. pg. 318 "Try It" pg. 320 # 10-20 How to use translations to identify features of a Quadratic such as vertex & line of symmetry. How to determine if Quadratic has max or min. Ex pg. 327 # 1-10, 12-15 grapwork pg. 329 # 37-49 odd HW pg. 329 # 38-48 ev.														
Assessment:	<u>How will you assess students' understanding of today's lesson?</u> Test-Quiz-Verbal Questioning - Group Work - Homework (written or reading) - Project presentation- portfolios- Other:														

5-1A Practice

Name _____

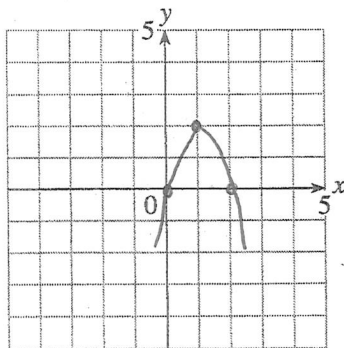
Date _____

Plot points to graph each quadratic function. For each, find the coordinates of the vertex, the line of symmetry, and the maximum or minimum y-value of the function.

1. $y = -x^2 + 3x$

$V = (1.5, 2.25)$

$X = 1.5$ $Y = 2.25$ MAX

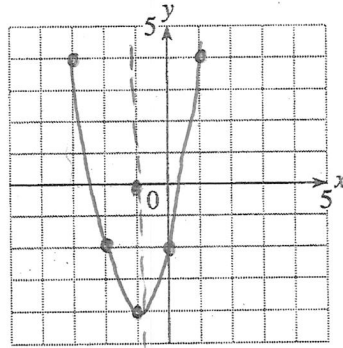


x	y
0	0
1	2
2	2

2. $y = 2x^2 + 4x - 2$

$V = (-1, -4)$ MIN

$X = -1$



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

Given each pair of reflection image points on a parabola, find the equation of the line of symmetry.

3. $(2, 3), (6, 3)$ $x = 4 = \frac{2+6}{2}$

4. $(-4, -4), (7, -4)$ $x = 1.5 = \frac{-4+7}{2}$

5. $(3.6, -15), (7.8, -15)$ $x = 5.7 = \frac{3.6+7.8}{2}$

6. $(12.7, 16.8), (-23.5, 16.8)$ $x = -5.4 = \frac{12.7-23.5}{2}$

Given the vertex (V) of a parabola and a second point (P) on the parabola, find the coordinates of a third point on the parabola.

7. $V(0, -5), P(-4, 20)$ _____

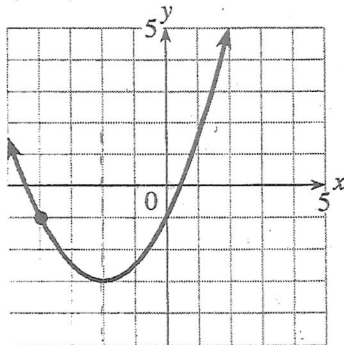
8. $V(1, 7), P(0, 5)$ _____

9. $V(8, 12), P(13, 3)$ _____

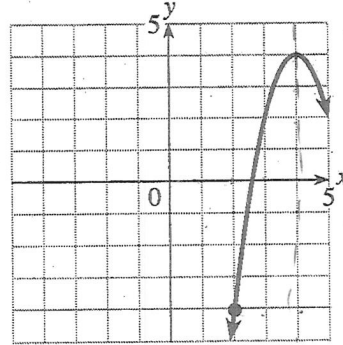
10. $V(3, 10), P(7, 26)$ _____

Give the coordinates of the vertex, the equation of the line of symmetry, and the image point of the labeled point for each parabola. What is the maximum or minimum y-value of the function that each represents?

11. $V = (-2, -3)$ $x = -2$ $Y = -3$ MIN



12. $V = (4, 4)$ $x = 4$ $Y = 4$ MAX



Determine whether each function is quadratic. If it is, write its equation in the form $y = ax^2 + bx + c$.

13. $y = (x+3)^2 - x^2$ NOT

14. $y = (x+3)(x-5)$ _____

15. $y = 2x(x-5) + 20$ _____

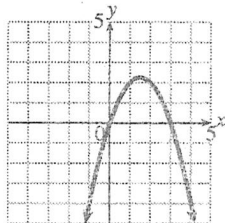
16. $y = x^2(2x+5)$ NOT

CHAPTER 5

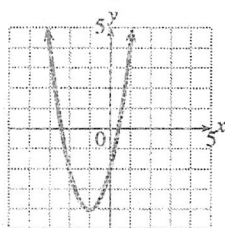
5-1 Part A

1. $(\frac{3}{2}, \frac{9}{4}); x = \frac{3}{2}$

Maximum $y = \frac{9}{4}$



2. $(-1, -4); x = -1$
Minimum $y = -4$



3. $x = 4$ 4. $x = \frac{3}{2}$ 5. $x = 5.7$ 6. $x = -5.4$

7. Possible Answer: (4, 20) 8. Possible Answer: (2, 5)

9. Possible Answer: (3, 3)

10. Possible Answer: $(-1, 26)$ 11. $(-2, -3); x = -2$

$(0, -1);$ Minimum $y = -3$ 12. $(4, 4); x = 4; (6, -4);$

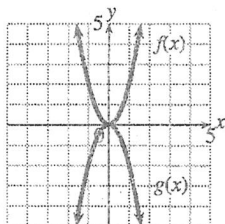
Maximum $y = 4$ 13. Not quadratic

14. Quadratic; $y = x^2 - 2x - 15$

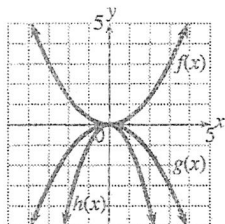
15. Quadratic; $y = 2x^2 - 10x + 20$ 16. Not quadratic

5-1 Part B

1.



2.



3. $y = 7x^2$ 4. $y = -2x^2$ 5. $y = -2x^2$ 6. $y = \frac{3}{2}x^2$

7. $y = -4x^2$ 8. $y = \frac{2}{5}x^2$ 9. $y = -\frac{1}{3}x^2, y = \frac{1}{3}x^2$

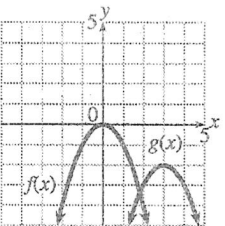
10. $y = \frac{3}{5}x^2, y = -\frac{3}{5}x^2$ 11.a. $K(v) = \frac{3}{2}v^2$ b. The graph of

$K(v)$ is narrower. c. $\frac{3}{2}$ Joules, 6 Joules, 24 Joules, 96 Joules d. 6 m/s

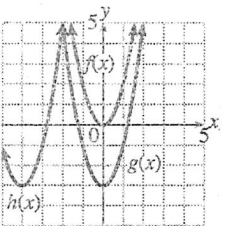
5-1 Part C

1. a. 3 2. 2 c. 1 d. 4

2.



3.



4. $(0, 0);$ Maximum 5. $(3, 5);$ Minimum 6. $(-2, 3);$

Maximum 7. $(2, -4);$ Minimum 8. $(-7, -17);$

Minimum 9. $(\pi, \frac{7}{8});$ Maximum

10. $f(x) = 5(x-2)^2 + 3$ 11. $f(x) = -3(x+2)^2 + 7$

12. $f(x) = -\frac{2}{9}(x-\frac{3}{7})^2 + \frac{4}{9}$ 13. $f(x) = \frac{2}{3}(x-7)^2 - \frac{3}{2}$

14. $f(x) = m(x-c)^2 + d$ 15. $f(x) = p^2(x-3m)^2 + 2n$

16. Translate 3 units right and 5 units upward.

17. Reflect over x -axis and translate 2 units left.

18. Reflect over x -axis and translate 5 units left and 3 units downward.

19. Translate 4 units left and 11 units upward.

20. Reflect over x -axis and translate 7 units downward.

21. Translate 8 units right and 17 units downward.

5-1 Part D

1. 9 2. 4 3. $-22n$ 4. 0.09 5. 400 6. $-5z$

7. $26m$ 8. 625 9. $-\frac{6}{7}x$ 10. $\frac{121}{25}$

11. $y = (x+4)^2 - 16; (-4, -16); x = -4;$ Minimum $y = -16$

12. $y = (x-5)^2 - 25; (5, -25); x = 5;$ Minimum $y = -25$

13. $y = (x-2)^2 - 16; (2, -16); x = 2;$ Minimum $y = -16$

14. $y = (x+\frac{5}{2})^2 - \frac{25}{4}; (-\frac{5}{2}, -\frac{25}{4}); x = -\frac{5}{2};$

Minimum $y = -\frac{25}{4}$

15. $f(x) = (x+1)^2 - 8; (-1, -8); x = -1;$ Minimum $f(x) = -8$

16. $f(x) = (x-3)^2 + 3; (3, 3); x = 3;$ Minimum $f(x) = 3$

17. $h(x) = 3(x+\frac{3}{2})^2 - \frac{27}{4}; (-\frac{3}{2}, -\frac{27}{4}); x = -\frac{3}{2};$ Minimum

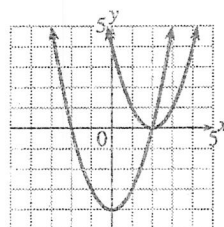
$h(x) = -\frac{27}{4}$ 18. $g(x) = 4(x-8)^2 - 241; (8, -241); x = 8;$

Minimum $g(x) = -241$ 19. $h = -6(t-\frac{7}{6})^2 + \frac{49}{6}; (\frac{7}{6}, \frac{49}{6});$

$x = \frac{7}{6};$ Maximum $h = \frac{49}{6}$ 20. $h = \frac{1}{2}(t+8)^2 + 44; (-8, 44);$

$x = -8;$ Maximum $h = 44$

21.a.



b. Yes, $x = 2$; Possible answer: The graphs intersect at $x = 2$.

5-1 Part E

1. Possible answer: (4, 5)

2. Possible answer: (3, 8)

3. Possible answer: (11, 6)

4. Possible answer: $(-11, 5)$

5. Possible answer: (5, 0)

6. Possible answer: $(-8, -9)$

7. $(0, -21); x = 0;$ Minimum

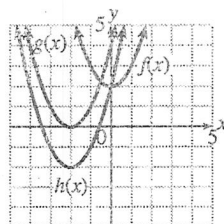
8. $(7, -18); x = 7;$

Maximum 9. $(-2, -5); x = -2;$ Minimum

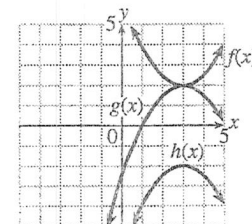
10. $(3, 7);$

$t = 3;$ Maximum

11.



12.



13. $y = (x-2)^2 + 11; (2, 11); x = 2;$ Minimum $y = 11$

14. $g(x) = \frac{1}{2}(x+7)^2 - 27\frac{1}{2}; (-7, -27\frac{1}{2}); x = -7;$

Sketching Parabolas

How do coefficients affect the graph?

$$f(x) = ax^2$$

↑ coefficient

- 1.) ^{determines} Max or Min
- 2.) width

$$f(x) = x^2 \rightarrow \text{opens upwards}$$

$$-x^2 \rightarrow \text{downward}$$

$$-3x^2 \rightarrow \text{down skinnier}$$

$$-\frac{1}{3}x^2 \rightarrow \text{wider down}$$

Examples: Pg. 318 Try It
 you get vertex & point plug in to $ax^2 = y$ Has $v(0,0)$

$$v = (0,0) \text{ PC } (2,10)$$

$$10 = a(2)^2$$

$$\frac{10}{4} = \frac{a \cdot 4}{4}$$

$$\frac{5}{2} = a \rightarrow \text{plug in for } a$$

$$\frac{5}{2}x^2 = y$$

$$\text{Reflection} = -\frac{5}{2}x^2 = y$$

Image point = $(2, -10)$ same point on the neg. side.

P 320# 16-120

16. $(1,1)$

$$1 = a(1)^2$$

$$1 = a \rightarrow y = 1x^2$$

17. $(1, -4)$

$$-4 = a(1)^2$$

$$-4 = a \quad y = -4x^2$$

18. $(2, -4)$

$$-4 = a(2)^2$$

$$\frac{-4}{4} = \frac{4a}{4}$$

$$-1 = a$$

$$y = -x^2$$

19. $(-3, -45)$

$$-45 = a(-3)^2$$

$$\frac{-45}{9} = \frac{9a}{9}$$

$$a = -5 \quad y = -5x^2$$

Daily Lesson Plan

Week of: April 8, 2007	Date: 4/11/07	Grade: 11	Subject: Algebra II MATH																		
General Topic: Today's Topic:	Quadratic functions Completing the Square																				
Expected Student Learning Outcomes	<u>What will students know and be able to do as a result of today's lesson?</u> write any quadratic function in the form $f(x) = a(x-h)^2 + k$ and complete the square																				
Standards Addressed:	<u>Which learning standard from the MA Frameworks or WPS curriculum does today's lesson address?</u> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>1. Number Sense</p> <p>2. Patterns, Relations & Functions</p> </div> <div style="width: 45%;"> <p>3. Geometry & Measurement</p> <p>4. Statistics & Probability</p> </div> </div>																				
School Improvement Plan	<u>Which (if any) literacy strategy does today's lesson address?</u> Learn to Read/ Read to Learn <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">Pre-Reading</td> <td style="width: 33%;">Guided Reading</td> <td style="width: 33%;">Post Reading</td> </tr> <tr> <td><input type="checkbox"/> Preview Text</td> <td><input checked="" type="checkbox"/> Make Connections</td> <td><input type="checkbox"/> Low Stakes Writing</td> </tr> <tr> <td><input checked="" type="checkbox"/> Ask Questions</td> <td><input checked="" type="checkbox"/> Visualize</td> <td><input type="checkbox"/> Projects</td> </tr> <tr> <td><input checked="" type="checkbox"/> Activate Prior Knowledge</td> <td><input checked="" type="checkbox"/> Think Aloud Strategy</td> <td><input type="checkbox"/> Presentations</td> </tr> </table> <hr/> Learn to Write/Write to Learn <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> "I wonder" log entries</td> <td><input type="checkbox"/> Letters</td> <td><input type="checkbox"/> Metacognitive Logs</td> </tr> <tr> <td><input type="checkbox"/> Exit slips</td> <td><input type="checkbox"/> 2 Column notes</td> <td></td> </tr> </table> <hr/> <input type="checkbox"/> Solve problems using linear equations/ Inequalities <input type="checkbox"/> Apply algebraic and graphical methods to solutions			Pre-Reading	Guided Reading	Post Reading	<input type="checkbox"/> Preview Text	<input checked="" type="checkbox"/> Make Connections	<input type="checkbox"/> Low Stakes Writing	<input checked="" type="checkbox"/> Ask Questions	<input checked="" type="checkbox"/> Visualize	<input type="checkbox"/> Projects	<input checked="" type="checkbox"/> Activate Prior Knowledge	<input checked="" type="checkbox"/> Think Aloud Strategy	<input type="checkbox"/> Presentations	<input type="checkbox"/> "I wonder" log entries	<input type="checkbox"/> Letters	<input type="checkbox"/> Metacognitive Logs	<input type="checkbox"/> Exit slips	<input type="checkbox"/> 2 Column notes	
Pre-Reading	Guided Reading	Post Reading																			
<input type="checkbox"/> Preview Text	<input checked="" type="checkbox"/> Make Connections	<input type="checkbox"/> Low Stakes Writing																			
<input checked="" type="checkbox"/> Ask Questions	<input checked="" type="checkbox"/> Visualize	<input type="checkbox"/> Projects																			
<input checked="" type="checkbox"/> Activate Prior Knowledge	<input checked="" type="checkbox"/> Think Aloud Strategy	<input type="checkbox"/> Presentations																			
<input type="checkbox"/> "I wonder" log entries	<input type="checkbox"/> Letters	<input type="checkbox"/> Metacognitive Logs																			
<input type="checkbox"/> Exit slips	<input type="checkbox"/> 2 Column notes																				
Outline of Lesson Activities: (to be posted on classroom agenda)	SAT correct HW pg. 329 # 38-48 even notes: How to complete the square. - Steps & Example. pg. 331 Try It, 332 Try It, pg. 333 # 1-8, pg. 333 # 1-17 odd graphwork: pg. 334 # 31-49 odd HW pg. 334 # 22-28 ev pg. 334 # 22-28 ev																				
Assessment:	<u>How will you assess students' understanding of today's lesson?</u> Test-Quiz-Verbal Questioning-Group Work-Homework (written or reading)-Project presentation-portfolios-Other:																				

Try It pg. 331

a. $y = x^2 + 6x$ $V = (-3; 9)$

sym $x = -3$

$\frac{b}{2} = 3$

$3^2 = 9$ $(x+3)^2 - 9$

$0 - 9$

c. $g(x) = x^2 - \frac{5x}{2} + 5$

$(-\frac{5}{2})^2 = \frac{25}{4}$ $(x - \frac{5}{2})^2 - \frac{5}{4}$

$\frac{20}{4} - \frac{25}{4} = -\frac{5}{4}$ $(\frac{5}{2}, -\frac{5}{4})$
 $5 - 6 \cdot \frac{25}{4} = -1.25$

b. $f(x) = x^2 - 10x - 90$

$\frac{-10}{2} = -5$

$-5^2 = 25$

$-90 - 25 = -115$ $(x-5)^2 - 115$

$V = (5, -115)$ sym $x = 5$

d. $x^2 + 7x - 3$

$(\frac{7}{2})^2 = \frac{49}{4}$

$(x + \frac{7}{2})^2 - \frac{61}{4}$

$-\frac{12}{4} - 3 = -\frac{49}{4} - \frac{61}{4}$
 $(-\frac{7}{2}, -\frac{61}{4})$

Try It pg. 332

e. $y = -3x^2 - 10x + 1$

$-3(x^2 + 2x + 1)$

$\frac{2}{2} = 1$

$\frac{3}{3} + \frac{1}{3} = \frac{4}{3}$ $(x+1)^2 - \frac{4}{3}$
 $-\frac{1}{3} - 1 = -\frac{4}{3}$

$-3(x+1)^2 + 4$

f. $f(x) = 2x^2 - 4x - 7$

$2(x^2 - 2x - \frac{7}{2})$

$\frac{-2}{2} = -1$

$-\frac{7}{2} - \frac{2}{2} = -\frac{9}{2}$ $(x-1)^2 - \frac{9}{2}$

$2(x-1)^2 - 9$

46. Max parabola

○ Shifted to the right 2

47. Min parabola

shifted to the right 5

up 3 on the y axis

48. Window $x = -100, 100$

$$y = -2000$$

$$500$$

Max parabola

shifted 11 to the left

Down 4 on the y-axis

Thinner / steeper than $-(x+11)^2 - 4$

49. Max parab.

Right 2 on x

up 4 on y

