Algebra II Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Unit 2B Quadratics Test Review Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Hour\_\_\_\_\_\_

Standard Form: y = ax2 + bx + c

Quadratic equation: x = $\frac{-(b)\pm \sqrt{(b)^{2}-4\left(a\right)(c)}}{2(a)}$

Equation for line of symmetry: x = $\frac{-(b)}{2(a)}$

Vertex Form: y = a(x – h)2 + k where (h,k) is the vertex.

The graph opens up when “a” is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The graph opens down when “a” is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. What is the axis of symmetry in the graphed quadratic function?

A



B

Axis of symmetry: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Axis of symmetry: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Page in notebook: \_\_\_\_\_\_\_\_\_\_\_\_\_

What formula or concept do you need to know for this question?

1. The vertex of the graph y = x2 is (0,0).

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

1. What is the vertex of the graph y = (x + 6)2 – 3?
2. What is the vertex of the graph y = -2(x – 9)2 – 5?

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

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Things to remember for this type of question:\_\_\_\_\_\_\_\_\_\_\_\_

1. Jessica, who has a bionic arm, is crossing a bridge over a small gorge and

decides to toss a coin into the stream below for luck.  The distance of the

coin above the water can be modeled by the function  h(t) = -16t2 + 96t + 112, where h(t) is the height of the coin in feet, above the water, and t is the time in seconds, the coin is in the air. What is the highest height the coin reaches before it drops into the water?

Page in your notebook:\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What strategy did you use to help you answer this question?

1. A manufacturer determines that the number of drills it can sell is given by the

formula D = -3p2 + 180p – 285, where *p* is the price of the drills in dollars.

 What is the maximum number of drills they will sell?

Page in your notebook:\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. The equation of the first graph is y = x2. What is the equation of the 2nd graph?



Equation:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Strategy: What form should you write the equation in, standard or vertex? (circle one)

How do you find the “a” value? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What page in your notebook helped you with these problems? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. The equation of the first graph is y = x2. What is the equation of the 2nd graph?



Equation:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. The graph below shows the equation y = x2. How would the graph of y = 10x2 differ from the given graph.



What strategy did you use to help you answer this question?

1. Which of the following is true about the graph of the quadratic function

y = 4(x - 6) + 3? Circle the true statement, and write and explanation by the others to Explain why the false statements are false.

1. The graph opens down
2. The vertex is located at (6, -3).
3. The vertex of the graph is a minimum
4. The graph has an axis of symmetry at y = -3.
5. Solve the following equation by square root method: 2x2 – 72 = 0.

Page in notebook\_\_\_\_\_\_\_\_\_\_

1. Solve the following equation by Factoring: x2 – 5x – 14 = 0

 Page in notebook\_\_\_\_\_\_\_\_\_\_\_

11) Solve the following equation using the quadratic formula.

 x2 – 5x + 2 = 0 (leave answer in exact form)

Page in notebook\_\_\_\_\_\_

1. Solve the equation by **factoring**: 3x2 + 16x + 5 = 0.

 Page in notebook\_\_\_\_\_\_

1. Solve the following by the **square root method**: x2 + 100 = 0

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1. Solve the following by the square root method: 2x2 – 144 = 0.

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1. Find the discriminant and number of real solutions of the following equation:
2. y = 2x2 – 9x – 5 b) y = 5x2 – 2x + 10

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1. Simplify the following:
2. $\sqrt{-175}$ b) $\sqrt{-80}$ c) $\sqrt{-48}$

1. Which of the following represents the graph of the quadratic equation whose zeros are -3 and 2 and whose *y*-intercept is found at (0, -4)?

**A B**

1

2

3

4

9

8

7

6

5

1

2

3

4

5

6

7

8

9

-1

-2

-3

-4

-5

-6

-7

-8

-9

-1

-2

-3

-4

-5

-6

-7

-8

-9

 0

***y***

***x***

1

2

3

4

9

8

7

6

5

1

2

3

4

5

6

7

8

9

-1

-2

-3

-4

-5

-6

-7

-8

-9

-1

-2

-3

-4

-5

-6

-7

-8

-9

 0

***y***

***x***

1

2

3

4

9

8

7

6

5

1

2

3

4

5

6

7

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9

-1

-2

-3

-4

-5

-6

-7

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-9

-1

-2

-3

-4

-5

-6

-7

-8

-9

 0

***y***

***x***

**C D**

1

2

3

4

9

8

7

6

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4

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7

8

9

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-4

-5

-6

-7

-8

-9

-1

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-9

 0

***y***

***x***

1. Factor 3x2 – 7x +2

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Page in notebook\_\_\_\_\_\_

1. Write the number in the form a + bi.
2. $\sqrt{-4}+10$ b) $\sqrt{-25}+7$ c) $\sqrt{-48}+3$

20) Use the quadratic formula to solve.

Page in notebook\_\_\_\_\_\_

 2x2 – 5x + 1 = 0



1. $\frac{5 \pm \sqrt{17}}{2}$ b) $\frac{-5\pm \sqrt{17}}{4}$ c) $\frac{5 \pm \sqrt{17}}{4}$ d) $\frac{5 \pm \sqrt{-33}}{4}$

Page in notebook\_\_\_\_\_\_

1. Find the vertex of the following equations:
2. y = 2x2 + 4x – 5 b) y = 3x – 12x + 2

What did strategy or formula did you use to help you with this problem? \_\_\_\_

1. Simplify the following expressions: Write as a + bi

Page in notebook\_\_\_\_\_\_

1. (-1 + 6i) + (-4 + 2i) b) (2 + 8i) + (-3 + -5i)

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1. Simplify the following expressions: Write as a + bi
2. (2 – 5i) – (3 + 4i) b) (-3 + 4i) – (6 – 6i)

Page in notebook\_\_\_\_\_\_

1. Find the product of the following. Remember i2 = -1

a) (2 + 5i)(-1 + 5i) b) (5 – 4i)(-2 + 5i)