**Quadratic Functions Pre-Unit Review**

🕊 **Objective:** *You will be able to rewrite and graph quadratic functions .*

**✯ What Am I?!**

|  |  |
| --- | --- |
| *When factoring, you should always look for me first…* | *I am a different way of writing (a + b)2…* |

**✯ Don’t Let Four Terms Through You for a Loop…**

*When you have four terms, first make two \_\_\_\_\_\_\_\_\_\_\_!*

1. 3d3 + 7d2 - 3d – 7 2. 16x3 + 72x2 – 10x – 45 3. 27m3 + 36m2 – 3m – 4

**✯ You may not always want to guess and check;**

**Use the grouping method to avoid a trek!**

**To do this you will need to rewrite “b”**

**As a sum of factors of “\_\_\_\_\_\_\_.”**

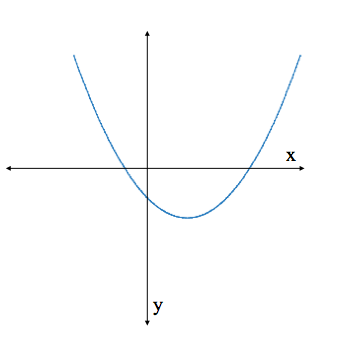
1. 54r3 – 30r2 – 4r 2. 6q8 – 5q4 – 6

3. 24p2 – 60p + 24

4. 10x6 – 33x3 - 7

**✯ Graphs**

**Essential Aspects:**

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**I wouldn’t want graphing to take you all day…**

**Each type of equation will help you along the way!**

**Each of these makes some part(s) so clear to see –**

**Know them very well, and EASY will graphing be! ☺**

**Intercept Form** **Vertex Form**

**Standard Form (factorable)**  **Standard Form (not factorable)**

**✯ Can You Solve These Puzzles?!** (I *know* you can! ☺)

**Puzzle A:** Function d(x) = x2 and function c(x) = -6 –x.

~ What are the solutions to d(x) + h(x) = 0?! **~** What are the solutions to 3d(x – 1) – 6h(x) = 0?!

**Puzzle B:** m2 – 6m – 7 – x(m – 7)2 = 0

~ If m = 7, what could the value of x be?! \_\_\_\_\_\_\_\_\_\_\_\_\_

If m = 5, x must be \_\_\_\_\_\_\_\_\_\_\_\_\_!

|  |  |
| --- | --- |
| Now pretend each seven were changed to a nine,  and any value of x would make the equation work fine.  Also replace the 6 with a “v”,  Then figure out what “m” and “v” must be! | m2 – vm – 9 – x(m – 9)2 = 0  is true for all real numbers, x.  What are the values of m and v? |

**Puzzle C:** How many different ways can you rewrite A4 – 81 + (A2 – 9)2 ?! List as many as possible!

**Puzzle D:** There exists a much simpler, shorter way to write (k3 + j3)2 – (k3 – j3)2.

Can you figure it out?!

**\*Check Unit 5 HW on the website for the homework problems & homework puzzles! (All required ☺)**

**Graphing Quadratic Functions Examples**

1. f(x) = –(x + 2)2 – 3 2. f(x) = (x – 3)(x + 5)

3. f(x) = -x2 + 4x + 12 4. f(x) = x2 - 6x + 9

5. f(x) = -2x2 – 8x – 11 6. f(x) = 3x2 –6x + 1

**Graphing Quadratic Functions Practice**

For each function,

- State the form the function is in.

- Determine the transparent aspects.

- Create a graph of the function using three points, on graph paper.

\*Be sure to identify your x-scale and y-scale!

1. f(x) = -2x2 + 8x - 10 2. f(x) = 2x2 – 2x – 12

3. f(x) = (2x – 4)(x + 5) 4. f(x) = -(x + 4)2 + 1

5. f(x) = 4x2 – 12x + 9 6. f(x) = 4x2 – 16x + 3

7. f(x) = -(x + 3)2 – 7 8. f(x) = x2 + 16x + 60

**Graphing Quadratic Functions Homework**

For each function,

- State the form the function is in.

- Determine the transparent aspects.

- Create a graph of the function using three points, on graph paper.

\*Be sure to identify your x-scale and y-scale!

1. f(x) = -(x – 8)(4x + 4) 2. f(x) = x2 + 16x + 64

3. f(x) = -3x2 – 24x + 2 4. f(x) = -(x - 1)2 – 3

5. f(x) = x2 – 49 6. f(x) = x2 – 6x + 8

7. f(x) = (x + 2)2 – 9 8. f(x) = 4x2 - 4x – 24

9. **Throwback:** a. Rewrite #4 in standard form. b. What is the domain & range in #6?

**Graphing Quadratic Functions Practice**

\*Identify the function(s) that will have imaginary solutions.

\*Identify the function(s) in which the vertex is the same as the x-intercept.

\*Identify the function(s) in which the vertex is the same as the y-intercept.

1.  2. 

3.  4. 

5.  6. 

7.  8. 

**Graphing Quadratic Functions Homework**

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7.  8. 