Blackline Masters Table of Contents

Card Sort: Representations of Quadratic Functions

$$y = x^2 - 1$$

Card Sort: Representations of Quadratic Functions

$$y = x(x - 4)$$

Card Sort: Representations of Quadratic Functions

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

Card Sort: Representations of Quadratic Functions

$$y = (x + 1)(x - 1)$$

Card Sort: Representations of Quadratic Functions

$$y = (x - 1)(x - 4)$$

Card Sort: Representations of Quadratic Functions

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

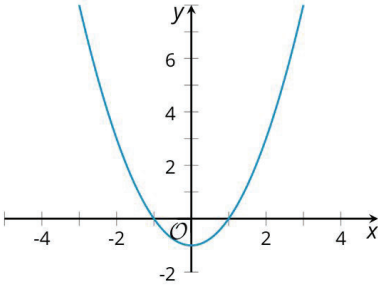
Card Sort: Representations of Quadratic Functions

$$y = (x - 2)^2$$

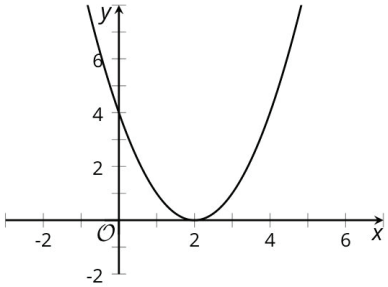
Card Sort: Representations of Quadratic Functions

$$y = x^2 - 5x + 4$$

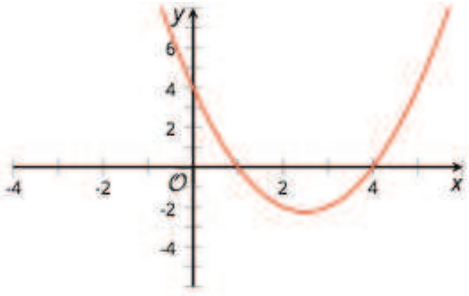
Card Sort: Representations of Quadratic Functions



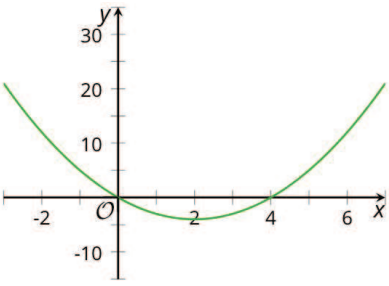
Card Sort: Representations of Quadratic Functions



Card Sort: Representations of Quadratic Functions



Card Sort: Representations of Quadratic Functions



RED Family
1 adult

You are a Filipino American male who just graduated from high school and you need to move out on your own. You found a job making minimum wage for non-tipped employees in Charlotte - $7.25 per hour - as a line cook at a nearby restaurant. You work 40 hours per week. You would like a studio apartment without roommates.

GREEN Family
1 adult; 1 child

You are a young single white mom with one child. You work as a server at a nearby restaurant. Minimum wage is different if you receive tips - $2.13 per hour. You work 40 hours per week. You make minimum wage, but because you average about $300 per week in tips, you actually earn approximately $9.63 per hour. You would like a two bedroom apartment.

BLUE Family
2 adults; 2 children

You are a two-adult Latino family with two children under the age of 5. You can't afford to put both children in childcare. Mom stays home to take care of the children. Dad works 40 hours per week at a construction company that pays 2 times minimum wage ($14.50) for non-tipped employees. You would like a three bedroom home because you want your children to have privacy growing up.

YELLOW Family
1 adult

You are a young Black woman who is going to school part time and working full time (40 hours per week). You work at the same construction company as the dad of the BLUE family, but most Black women (including you) make 64% what men at the company make. You would like a one bedroom apartment so you can separate your sleeping space from your work space used for studying.

ORANGE Family
1 adult

You are a Palestinian American female who is a full time student working about 20 hours per week. You have a minimum wage job working in the library (no tips). But you receive a scholarship that provides $1,000 on the 1st of every month for living expenses. You would prefer to live alone in a one bedroom apartment for personal and cultural reasons.

PURPLE Family
2 adults; 2 children

You are a two-adult Black family with two children. Both of the children are in full day public school. Both moms work full time (40 hours per week) at Amazon in Charlotte. Amazon pays employees $13 per hour. You need a three bedroom home so each of your children can have private space.

Name: Period: Date:

Are You Ready For More?

1. A function that predicts how much of a product will sell given its price is called a “demand function.” An example is the function that uses the price (in dollars per download), x, to determine the number of downloads (in thousands), $18 - x$. Economists are interested in factors that can affect the demand function and therefore the price suppliers wish to set.[1]

    a. What are some things that could increase the number of downloads predicted for a given price?

    b. If the demand shifted so that we predicted $20 - x$ thousand downloads at a price of x dollars per download, what do you think will happen to the price that gives the maximum revenue? Check what actually happens.

(From Unit 7, Lesson 2)

2.

    a. Jada says that some exponential functions grow more slowly than the quadratic function as x increases. Do you agree with Jada? Explain your reasoning.

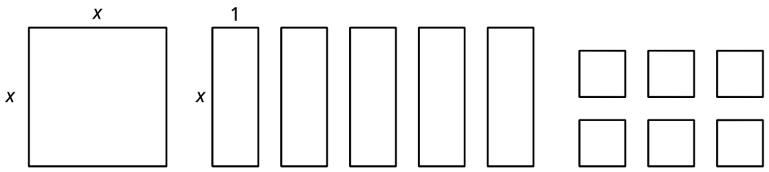
    b. Could you have an exponential function $g(x) = b^x$ and a quadratic function $f(x) = x^2$ so that $g(x) < f(x)$ for all values of x?

(From Unit 7, Lesson 3)

[1] Adapted from IM 9–12 Math https://curriculum.illustrativemathematics.org/HS/teachers/index.html, copyright 2019 by Illustrative Mathematics. Licensed under the Creative Commons Attribution 4.0 license https://creativecommons.org/licenses/by/4.0/.

3.

a. Is it possible to arrange an x by x square, five x by 1 rectangles and six 1 by 1 squares into a single large rectangle? Explain or show your reasoning.

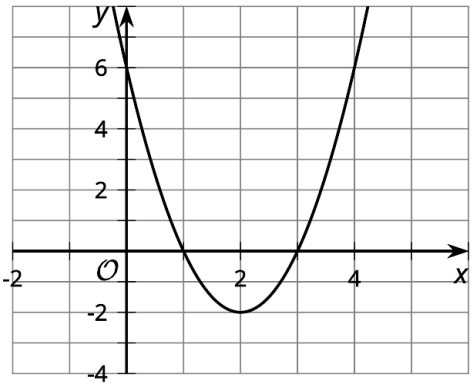


b. What does this tell you about an equivalent expression for $x^2 + 5x + 6$?

c. Is there a different non-zero number of 1 by 1 squares that we could have used instead that would allow us to arrange the combined figures into a single large rectangle?

(From Unit 7, Lesson 7)

4. Find the values of a, p, and q that will make $y = a(x - p)(x - q)$ be the equation represented by the graph.



(From Unit 7, Lesson 9)

5. The quadratic function f is given by $f(x) = x^2 + 2x + 6$.

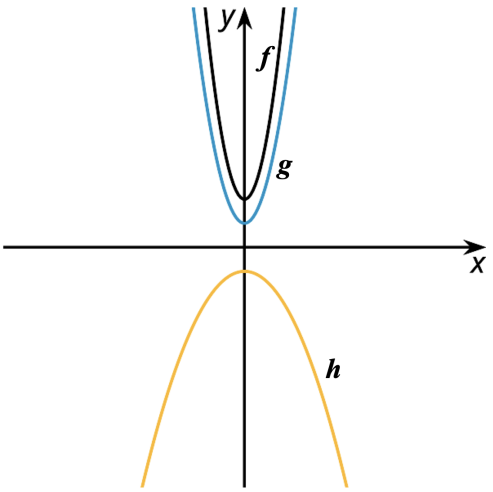
   a. Find $f(-2)$ and $f(0)$.

   b. What is the x-coordinate of the vertex of the graph of this quadratic function?

   c. Does the graph have any x-intercepts? Explain or show how you know.

(From Unit 7, Lesson 10)

6. Here are the graphs of three quadratic functions. What can you say about the coefficients of x^2 in the expressions that define f (in black at the top center), g (in blue on the top outside), and $$\pmb{h}$$ (in yellow at the bottom)? Can you identify them? How do they compare?



(From Unit 7, Lesson 11)

Picture: 7 inches by 4 inches

Framing material: 4 inches by 2.5 inches

M1.U7.L25 Timing A Blob of Water visual

Images from https://pxhere.com/

Name: Period: Date:

End-of-Unit 7 Student Survey

1. Ending this unit I <u>feel</u> … (this question could be answered with pictures, words, etc.)

2. How much did you know about the content of this unit before starting?

   a. A great deal b. A little c. Not much

   Feel free to share more:

3. After finishing the unit did your knowledge in the content:

   a. Increase greatly b. Increase a little c. Stay the Same

   Feel free to share more:

4. What was most frustrating for you while learning during this unit?

   a. Materials Used b. Teacher strategies c. Technology d. Other: _____

   Feel free to share more:

5. What boosted your confidence in math during this unit?

   a. Materials Used b. Teacher strategies c. Technology d. Other: _____

   Feel free to share more:

6. What connections do you think the concepts from this unit make to the world around you?

7. What did your level of engagement and participation during the unit tell you about yourself and the way you see yourself and your abilities in math?

8. How would you like to improve in the next unit?

9. How can your teacher support your goals for improvement in the next unit?

10. I'd like my Math 1 teacher(s) to know that I want them to continue _____

11. Please share anything else you'd like regarding your experiences in this unit and your feelings about the upcoming unit.