Review for 3D Quiz Name Key Date _____ Period _____

1. The total wages John makes at working as a part time math tutor vary directly with the number of hours he works. He makes $8.50 per hour.
   a. How long will it take John to earn $136?

   It will take 16 hours.

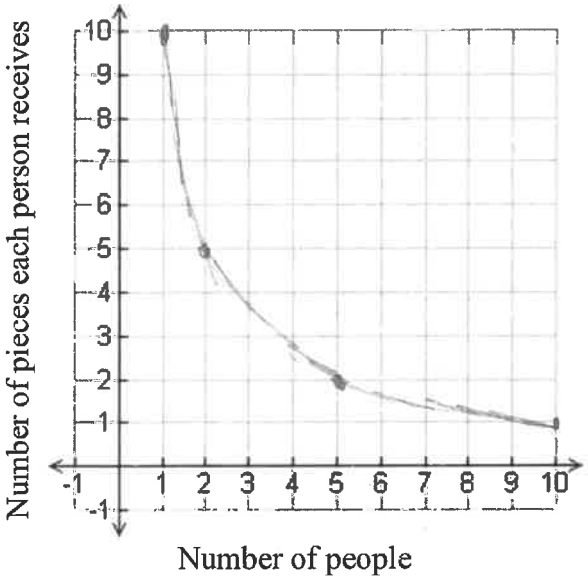
   b. How much will John make it he works for 1 hour and 30 minutes?

   He will make $12.75.

   c. Write an equation that relates the total wages earned, w, to the amount of hours worked, h.

   $W = 8.50h$

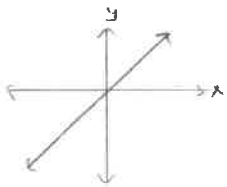
2. Mary has a total of 10 candy bars to share equally among her friends. Create a graph that shows all of ways that she can share her candy bars if she had to split it up between different numbers of people. Is this an example of a direct variation or an inverse variation? How do you know?



This is an example of inverse variation. The number of people multiplied by the number of candy bars must always be equal to 10. So, $xy = 10$. This is an example of a constant product, which means x and y vary inversely

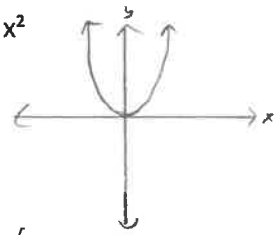
3. Draw a sketch of each basic equation.

a. $y = x$



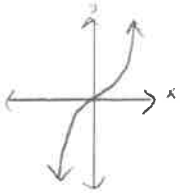
Linear (and a Direct Variation)

b. $y = x^2$



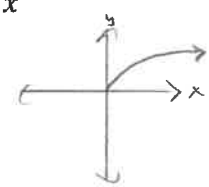
Quadratic

c. $y = x^3$



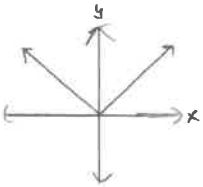
Cubic

d. $y = \sqrt{x}$



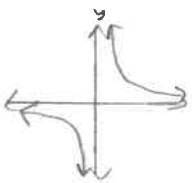
Square Root

e. $y = |x|$



Absolute Value

f. $y = \frac{1}{x}$



Inverse Variation

4. The graphs of y = 4x and xy = 4 intersect at two points. Explain why the points (1,4) and (-1,-4) are intersection points.

$4 = 4(1)$ $\quad -4 = 4(-1)$ $\quad (1)(4) = 4$ $\quad (-1)(-4) = 4$

$4 = 4$ ✓ $\quad -4 = -4$ ✓ $\quad 4 = 4$ ✓ $\quad 4 = 4$ ✓

The points are each solutions to both equations.

5. Consider the equation $y = x^2$.

a. Write the resulting equation after a transformation with the rule $(x, y) \rightarrow (x - 4, y)$.

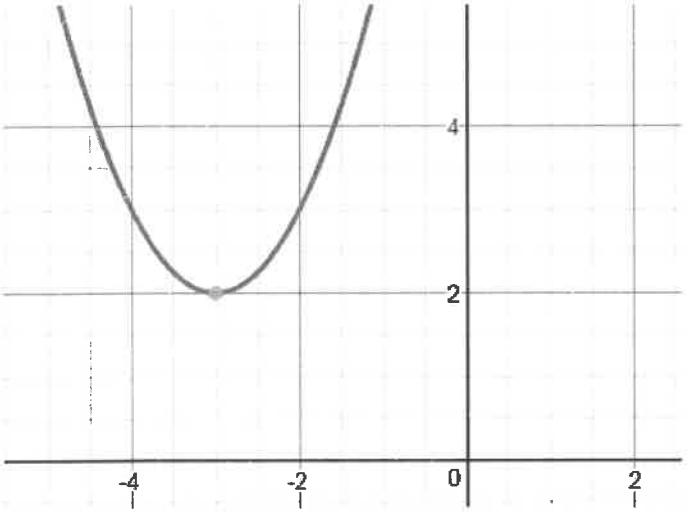
$y = (x+4)^2$

b. Describe the transformation in words (what happened to the original graph to result in the new graph).

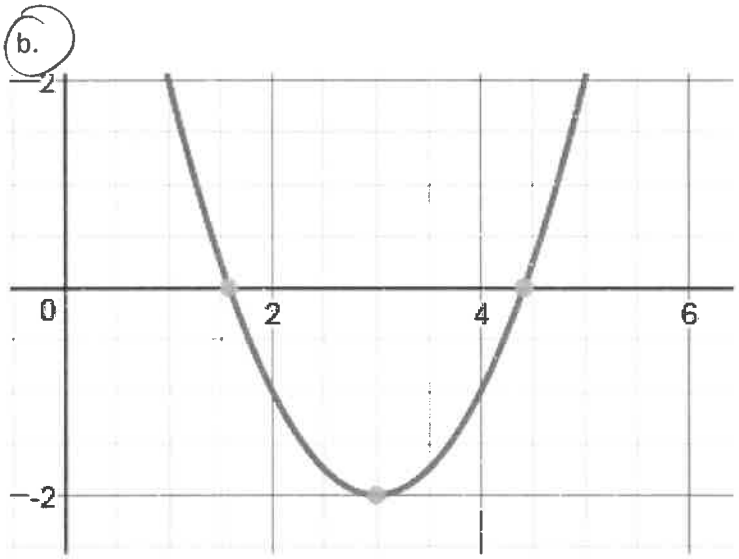
The original graph was translated 4 units to the left.

6. Which graph is the graph of $y+2=(x-3)^2$?

a.



b.



c.