

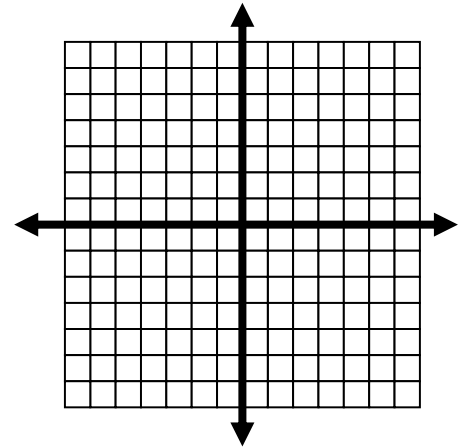
Name: _____ Date: _____ Period: _____

Chapter 2 Challenge Questions

SHOW ALL WORK!!!

1. Suppose the equation $y = 12 + 10x$ represents the amount of money you have in your wallet, where y is the amount in dollars and x is the number of weeks from today.
 - a. What does the slope represent in this situation?
 - b. What does the y -intercept represent in this situation?
 - c. Is the equation in slope-intercept form? If not, write the equation in slope intercept form.
 - d. Determine how much money you will have in your wallet after eight weeks.

2. Write the equation $-4x - 12y = 24$ in slope-intercept form.
 - a. What is the slope of the line?
 - b. What is the y -intercept?
 - c. Graph the line.



3. Consider the function $y = 3|x - 2| + 1$
 - a. State the vertex.
 - b. Determine the axis of symmetry.
 - c. Determine the x - and y - intercepts if there are any.
 - d. Determine the transformations from the parent function $f(x) = |x|$.

4. The equation $e = 1000 - 12m$ represents Mariah's elevation e in feet for each minute m she hikes on Laurel River Canyon.
- What does the slope represent in this equation?
 - What does the y-intercept represent in this situation?
 - Is Mariah hiking uphill or downhill? Explain.
 - Solve the equation to determine after how many minutes will Mariah 490 feet.
5. Create your own function for the transformation of $f(x) = |x|$ that has been reflected in the x -axis, translated 3 units up, translated to the right 4 units and vertically compressed by a factor of $\frac{1}{2}$.
6. Ashley graphed $y = 2|x + 4| - 1$ and $y = \frac{1}{2}|x + 4| + 1$ on the same coordinate plane. Describe the similarities and differences in the graphs in the chart below.

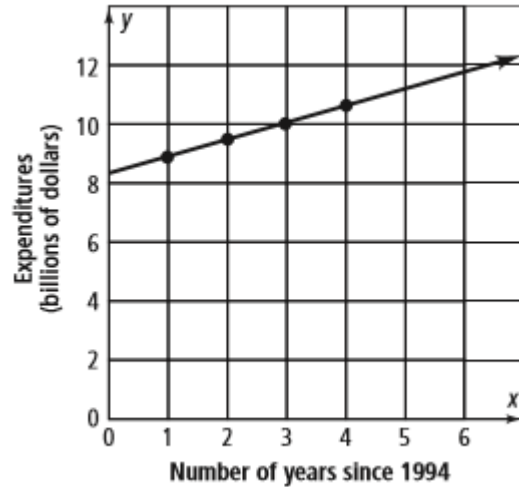
Similarities	Differences

7. Analyze the data in the table and the scatterplot provided. A trend line has been drawn.

**U.S. Health Expenditures
Drug and Other Medical
Nondurables**

Year	Expenditures (billions of dollars)
1995	8.9
1996	9.4
1997	10.0
1998	10.6

SOURCE: *The World Almanac and Book of Facts, 2001*



- What is the equation of the trend line in slope intercept form, if the trend line is using a slope of 0.6 and the point (1, 8.9)?
- During what year did the U.S. spend \$10 billion in health expenditures?
- Using the points for 1995 and 1997, What is the slope of the trend line? Round to the nearest hundredth.
- Use your equation from part a, where $x = 0$ is 1994. About how many billion dollars would the U.S. have spent on health expenditures in the year 2001, rounded to the nearest tenth?