



Dear Parents:

This is a brief description of what your child will learn in the third unit of Algebra 1 as well as some specific ways that you can help your child. Please feel free to contact your child's teacher if you have any questions.

Enduring Understandings

Relations and functions can be represented numerically, graphically, algebraically, and/or verbally.

Linear functions represent situations involving a constant rate of change.

Essential Questions

What makes a relationship linear?

Why are linear functions useful?

Indicators: Students will be able to . . .

represent linear functions numerically, algebraically, and/or graphically.

determine the rate of change and the x - and y -intercepts of the graph of a linear function represented numerically, algebraically, and graphically.

interpret properties of linear functions, including rate of change, intercepts, and continuity, in the context of a real-world situation.

identify, describe, and apply the properties of a direct variation.

WAYS PARENTS CAN HELP

? Ask your children about the real world problems that they are doing in class. Discuss how the rate of change exists in the world around them. Examples include the cost of x gallons of gas, your pay may be determined by the number of hours worked times the hourly wage, and paying a flat rate for a car rental plus x cents per mile.

? Talk with your child about how the different representations of equations (algebraic, table, and graph) can be used to solve problems. Have them show you on their calculator how they switch between the types.

Sample High School Assessment Problems

(from the Maryland state H.S.A. web site http://mdk12.org/mspp/high_school/look_like/algebra/intro.html)

Elizabeth joins a CD buyer's club. She receives 10 free CDs when she joins this club. She must buy 3 CDs each month.

Complete the following:

? Write an equation that represents the number of CDs (y) Elizabeth will receive from the CD buyer's club after x months.

? What is the y -intercept of your equation? What does the y -intercept mean in the context of this problem?

? Elizabeth wants to receive no more than 55 CDs from this club. What is the maximum number of months Elizabeth will remain in the CD buyer's club? Use mathematics to explain how you determined your answer. Use words, symbols, or both in your explanation.

The graph below shows a linear model of the number of people in the United States who have private or government health insurance.



What is the slope, in millions of people per year, of this linear model?

Students in a nutrition class decide to sell orange juice at their school's next sports event. To determine the price, the students record prices of orange juice from various stores in their city. The table below shows the price of different-sized bottles of juice.

PRICE OF ORANGE JUICE

Bottle Size (in ounces)	Price (in dollars)
16	2.19
24	2.99
30	3.59
32	3.79
48	5.29
64	6.99

Complete the following:

- Write an equation for a line of best fit.
- What is the slope of your equation? What does the slope mean in the context of this problem?
- The students are selling 8-ounce bottles of orange juice. According to your line of best fit, what is the price of an 8-ounce bottle of juice? Use mathematics to explain how you determined your answer. Use words, symbols, or both in your explanation.