Name: Key Date: Class:

linear relationships

In the previous example, you noticed that the rate of change was constant. Leanne's total money raised increased by $2 for each km she walked. This is a linear relationship. Ms. Chang's class decided to use the money raised in the walkathon to buy books for the children's hospital. The class put their money in the school safe and withdrew a fixed amount each week to purchase new books. To keep track of the money in the account, Isis makes a table of the amount of money in the account at the end of each week.

Week	Amount of Money at the End of Each Week
0	$144
1	$132
2	$120
3	$108
4	$96
5	$84

Does this table represent a linear relationship? How do you know?

yes, it has a constant rate of change (-12 each wk).

1. How much money is in the account at the start of the project? Explain.

   $144. That is amount at zero weeks.

2. What does this amount represent? *Think back to the previous walkathon activity.

   The amount of money raised during walkathon

3. How much money is withdrawn from the account each week? How is that amount shown in the table? $12.00 The y value decreased by 12 each time x (weeks) increased by 1.

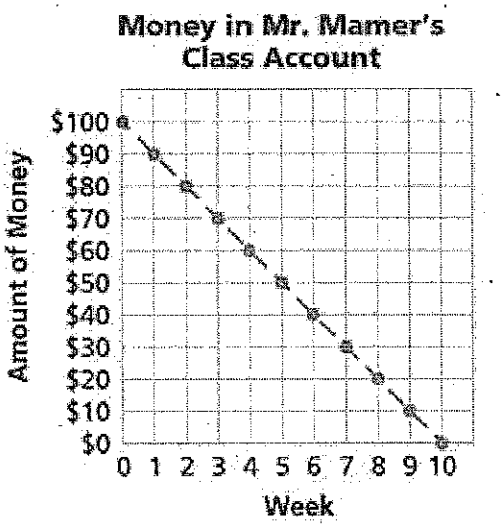
4. Write an equation that represents the relationship. Explain what each number and variable in the equation represents. $y = 144 - 12x$

   (\$ in acct.) starting -12 each week

5. Is the relationship between the number of weeks and the amount of money in the account linear? Explain.

   yes, it has a constant rate of change.

Mr. Manny's class also raised money from the walkathon. They used the money to buy games and puzzles for the children's hospital. Keenan used a graph to keep track of the amount of money in their account at the end of each week.



Reading the Graph:

1. What does the independent variable represent? x value
   Weeks
2. What does the dependent variable represent? y value
   Amount of money
3. Is the amount of money in the account increasing or decreasing over time? decreasing
4. How much money does the class spend each week? $10
5. How much money was in the account when they started? $100
6. After how many weeks will the class have no more money for puzzles and games? 10 weeks

Create a table displaying the data in the graph.

Week	0	1	2	3	4	5	6	7	8	9	10
Money in account	100	90	80	70	60	50	40	30	20	10	0

7. Write an equation that represents the data in the table. Explain what each number and variable represents.

$y = 100 - 10x$

y: $ in acct. | 100: starting amount | 10: rate of change | x: weeks

8. Is the relationship in the table linear? *remember it has to show a constant rate of change.

Yes.