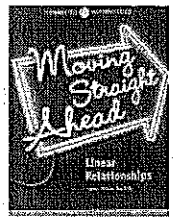
Name: Key Date: _____ Class: _____



linear functions practice

Ms. Chang's class is analyzing their data from the walkathon. Each student recorded money collected.

Leanne's sponsors will donate $10 regardless of how far she walks.

Gilberto's sponsors will donate $2 per kilometer (km) walked.

Alana's sponsors will make a $5 donation plus 50 cents per kilometer (km).

The class refers to these as pledge plans. We will use tables, graphs, and equations to predict how much money might be raised with each plan.

1. Fill in the table below to show the amount of money each student would raise for the first 6 km walked.

Pledge Plans

Distance (km)	Amount of Money		
	Alana	Gilberto	Leanne
0	$5	$ 0.00	$10
1	$5.50	$ 2.00	$10
2	$6.00	$ 4.00	$10
3	$6.50	$ 6.00	$10
4	$7.00	$ 8.00	$10
5	$7.50	$10.00	$10
6	$8.00	$12.00	$10

2. What is the independent variable? (x) Distance (km)
3. What is the dependent variable? (y) Amount of money
4. Who raised the most money if they only walked 1 km? Leanne
5. How much money did Alana make after walking 5 km? $7.50

6. Are these pledge plans linear? Why or why not?

Alana & Gilberto are linear because they are increasing by a constant rates. There was no change in Leanne's.

7. List the rate of change for each student

Alana's rate of change $0.50 per km

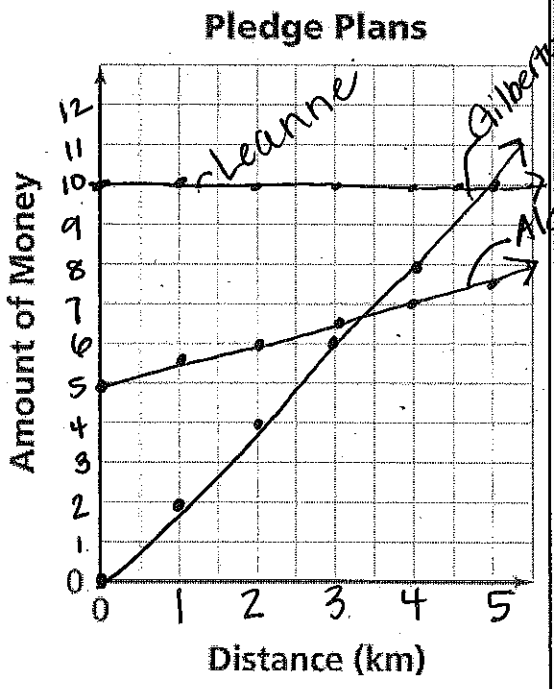
Gilberto's rate of change $2 per km

Leanne's rate of change 0 per km

8. How does the rate of change show up in the table?

Change in Amount of money per distance (km).

9. Graph each of the three pledge plans on the graph below. Label each with the students' name.



10. For each pledge plan, write an equation that represents the relationship between the distance walked and the amount of money donated. Explain what the information each number or variable represents.

Leanne's equation: $y = \$10$

Gilberto's equation: $y = \$2x$

Alana's equation: $y = 5 + .50x$

11. How does the rate of change show up in the graph?

Higher rate of change = steeper line.

12. Suppose each student walks 8km in the walkathon. How much would they each raise?

Leanne's total: $10

Gilberto's total: $16

Alana's total: $9

13. Suppose each student raises $10 from a sponsor. How many km did they each walk?

Leanne - no way to tell Gilberto $10 = 2x$, $x = 5$ (km)

14. In Alana's plan, how is the fixed $5 donation represented in:

The table? y value when $x = 0$ (0, 5)

The graph? (where graph begins on y-axis)

The equation? The amount added to her .50x - rate of change.

Alana

$10 = 5 + .50x$

$-5 \quad -5$

$5 = .50x$

$10 = x$ (10 km)

15. Gilberto decided to give each sponsor a T-shirt from the walkathon. Each shirt costs him $4.75. He plans to pay for the shirt with some of the money he raises from each sponsor.

a. How will this affect his total from each sponsor?

It will decrease by 4.75

b. Write an equation that represents the amount of money Gilberto raises from each sponsor after he has paid for the T-shirt.

$y = 2x - 4.75$ y

c. Is the relationship linear? Explain.

Yes, rate of change is still constant.