

Good Morning!

Today you will need:

- Vocab sheet
- pencil
- calculator

1.3 Raising Money

Using Linear Relationships

In *Variables and Patterns*, you looked at situations that involved *dependent* and *independent* variables. In Problem 1.2, the distance walked depended on the time. This tells you that distance is the **dependent variable** and time is the **independent variable**. In this Problem, you will look at relationships between two other variables in a walkathon.

Each participant in the walkathon must find sponsors to pledge a certain amount of money for each kilometer the participant walks.

dependent variable

When there are the two variables in a relationship, the value of the dependent variable depends upon the independent variable.

ex:
the relationship between distance and time on a car trip
 the distance you travel depends on how long you drive,
 so distance is the dependent variable

independent variable

When there are the two variables in a relationship, the independent variable determines the value of the dependent variable.

ex:
the relationship between distance and time on a car trip
 the distance you travel depends on how long you drive,
 so time is the independent variable

The students in Ms. Chang's class are trying to estimate how much money they might be able to raise. Several questions come up in their discussions:

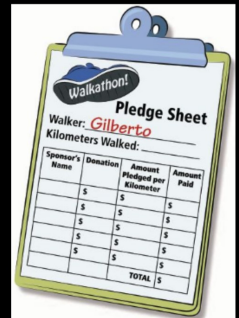
- What variables can affect the amount of money that is collected?
- How can you use these variables to estimate the amount of money each student will collect?
- Will the amount of money collected be the same for each walker?

Each student found sponsors who are willing to pledge money according to the following descriptions.

- Leanne's sponsors will donate \$10 regardless of how far she walks.
- Gilberto's sponsors will donate \$2 per kilometer (km).
- Alana's sponsors will make a \$5 donation plus 50¢ per kilometer.

The class refers to these as *pledge plans*.

Tables, graphs, and equations will help you predict how much money might be raised with each plan.



1. **Make a table** for each student's pledge plan, showing the amount of money each of his or her sponsors would donate if he or she walked distances from zero to six kilometers.

Distance (km)	Money Raised \$\$		
	Alana	Gilberto	Leanne
0			
1			
2			
3			
4			
5			
6			

What are the dependent and independent variables?

Each student found sponsors who are willing to pledge money according to the following descriptions.

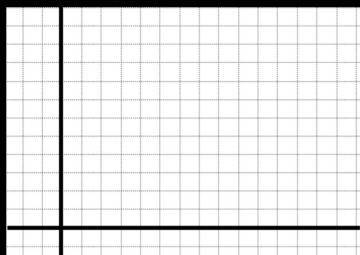
- Leanne's sponsors will donate \$10 regardless of how far she walks.
- Gilberto's sponsors will donate \$2 per kilometer (km).
- Alana's sponsors will make a \$5 donation plus 50¢ per kilometer.

Class Work Answers:

1. The dependent variable is the money raised (\$).
 The independent variable is the distance (km).

Distance (km)	Amount of Money		
	Alana	Gilberto	Leanne
0	\$5	\$0	\$10
1	\$5.50	\$2	\$10
2	\$6	\$4	\$10
3	\$6.50	\$6	\$10
4	\$7	\$8	\$10
5	\$7.50	\$10	\$10
6	\$8	\$12	\$10

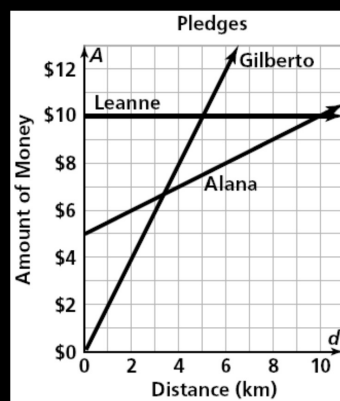
2. Graph the three pledge plans on the same coordinate axes. Label each student's line.



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1	\$5.50	\$2	\$10
2	\$6	\$4	\$10
3	\$6.50	\$6	\$10
4	\$7	\$8	\$10
5	\$7.50	\$10	\$10
6	\$8	\$12	\$10

Class Work Answers:

2.



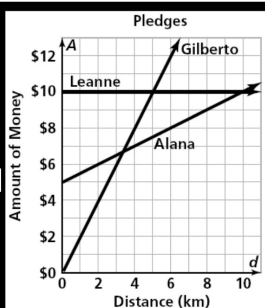
3. Write an equation for each pledge plan.

Alana:

Gilberto:

Leanne:

What information does each number and variable in your equation represent?



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Homework:

finish FRONT of 1.3 labsheet

Class Work Answers:

3. Alana: $m = 5 + 0.50d$

Gilberto: $m = 2d$

Leanne: $m = 10$

m is the money raised, d is the distance in km, 5 and 10 are the \$5 and \$10 one-time donations, 2 and 0.50 are \$2 and \$0.50 donations per km.

you may use different variables, but the explanations should be the same

Homework Answers:

3. Alana: $m = 5 + 0.50d$

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