

UNIT 2 LESSON 4 – WORD PROBLEMS AND GRAPHING LINEAR EQUATIONS

We've already learned how to graph linear equations with two variables.

Remember: 1) make a table of values

OR

2) use the slope and y-intercept

Most used words that hint at what the slope will be:

each
every
per

Example 1

A local convenience store owner spent \$10 on 144 pencils to resell at the store. What is the equation for the store's profit if each pencil sells for \$0.50? Graph the equation using a table of values.

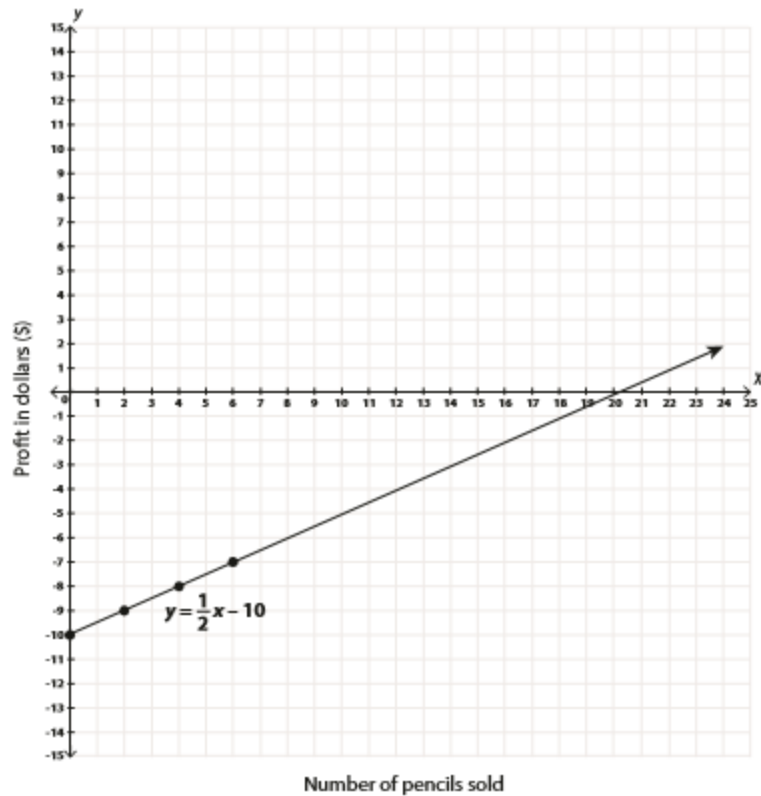
Step 1) Write the problem in slope-intercept form: $y = mx + b$

$$Y = 0.5x - 10$$

Step 2) Make a table of values for the graph

x	y
0	$\frac{1}{2}(0) - 10 = -10$
2	-9
4	-8
6	-7

Step 3) Plot points and connect



Example 2

A taxi company in Kansas City charges \$2.50 per ride plus \$2 for every mile driven. Write and graph the equation that models the cost of a taxi ride. Use the slope and the y-intercept to draw the graph.

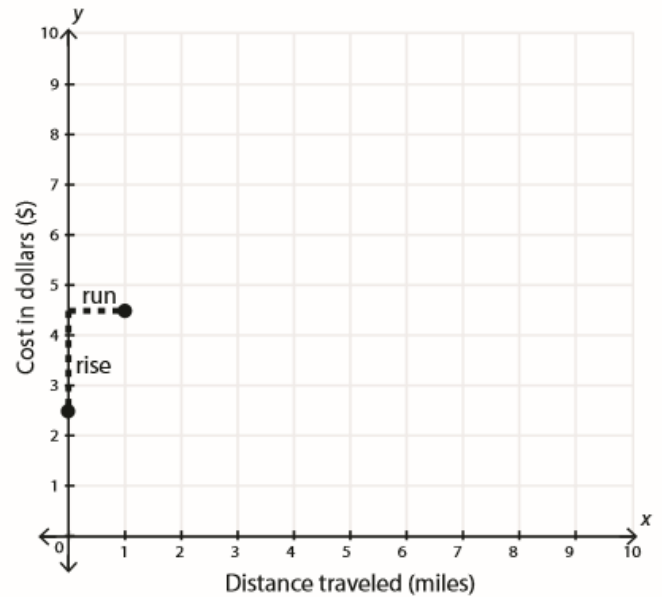
Step 1) Write the problem in slope-intercept form: $y = mx + b$

$$Y = 2x + 2.50$$

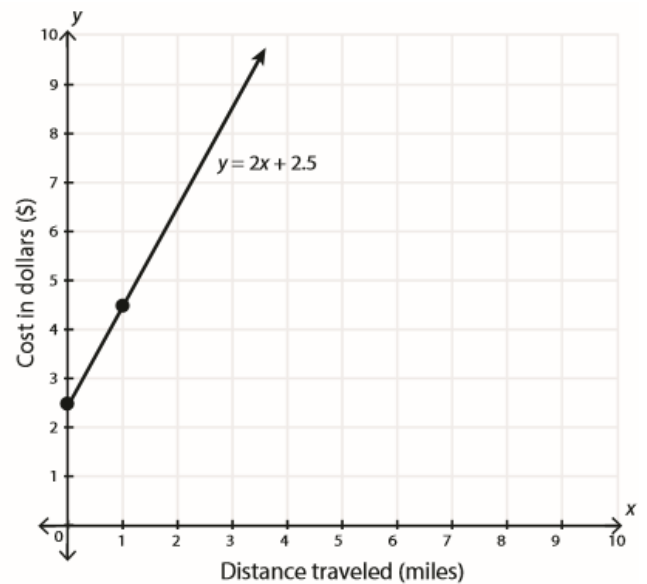
Step 2) Use the slope $m=2$ and the y-intercept $(0, 2.50)$ to graph

remember that slope is $\frac{\text{rise}}{\text{run}}$so make the slope a

$$\text{fraction } \frac{2}{1}$$



Step 3) Connect the points



Example 3

Miranda gets paid \$300 each week to deliver groceries. She also earns 5% commission on the total cost of each order she delivers. Write an equation that represents her weekly pay and then graph the equation.

Equation is: $y = 0.05x + 300$

Example 4

A Boeing 747 starts out a long flight with about 57,260 gallons of fuel in its tank. The airplane uses an average of 5 gallons of fuel per mile. Write an equation that models the amount of fuel remaining in the tank over the course of the flight. Graph the equation using a graphing calculator, and then draw the resulting graph on graph paper.

Equation is: $y = -5x + 57,260$