



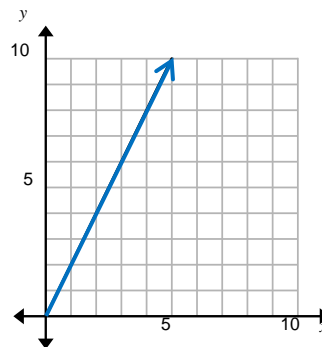
Interpreting the y-intercept (page 1)

Create a chart and graph for the scenarios below. Identify the slope.

- (A) Each week Marlow puts 2 dollars away per week to save up some money to buy a new video game.

Slope: $\frac{2 \text{ dollars}}{1 \text{ week}}$

Week	Total Money Saved (\$)
0	0
1	2
2	4
3	6

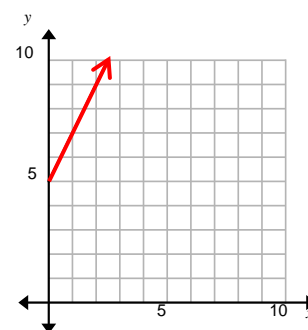


- (B) Each week a friend Jayden puts 2 dollars away per week to save up some money to buy a new video game—the same as Marlow. However, she already had 5 dollars when they started.

Slope: $\frac{2 \text{ dollars}}{1 \text{ week}}$

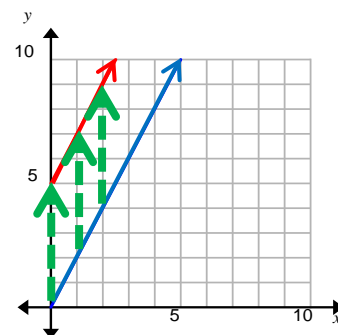
Week	Total Money Saved (\$)
0	5
1	5+2=7
2	5+4=9
3	5+6=11

+1 ↻ +2 ↻



Note the slope of the lines. They are the same! Each step horizontally is 1 week. Each step vertically is 2 dollars. Putting the graphs on the same grid should make it clear that Jayden's line is a vertical translation of Marlow's line by 5 units.

Note that the relationship represented by Marlow's savings is proportional, so we know the equation for Marlow's line is $y = 2x$. But the relationship represented by Jayden's is not proportional, so what is the equation for her line? The rate of change is the same for both graphs, so we know the slope is 2. Every point on Jayden's line is a vertical translation of Marlow's by 5. Therefore, $y = 2x + 5$. The slope m (value of 2 in this problem) represents the rate of change, and the initial value of 5 is labeled b and called the **y-intercept**. **Nonproportional linear relationship can be written in the form $y = mx + b$ called the slope-intercept form; m is the slope and b is the y-intercept.**

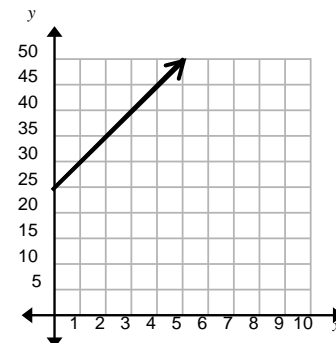


Let's look at a similar problem:

The senior class is selling t-shirts for homecoming week. It costs \$25 for the original design and then \$5 to print each shirt. Show the graph for this scenario and write an equation.

The graph intersects at 25 (initial cost), so $b = 25$. Slope (m) is $\frac{5}{1} = 5$.

Using the slope intercept form $y = mx + b$
 $y = 5x + 25$



Interpreting the y-intercept (page 2)

1. The cost to go the aquarium is show in the table.

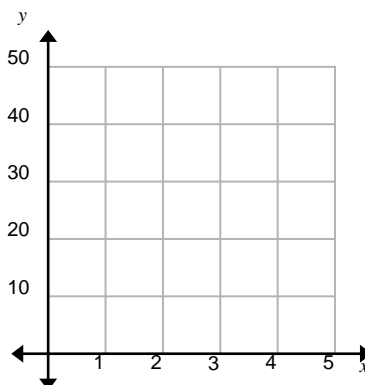
Number of People	1	2	3
Total Cost (\$)	15	30	45

Is the relationship proportional? Explain.

Graph.

What is the slope?

Equation for the graph:



2. The cost to go the zoo is the same as the aquarium except that there is a \$5 cost to park. Assuming that a party of 1-3 will arrive in the same car, show the total cost in a table.

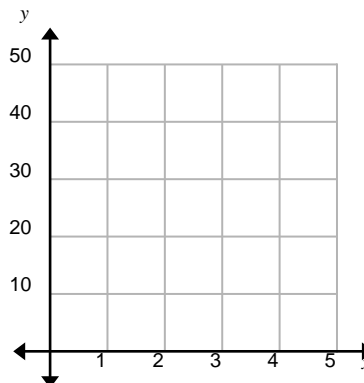
Number of People	1	2	3
Total Cost (\$)	20		

Is the relationship proportional? Explain.

Graph.

What is the slope?

Equation for the graph:



3. Pizza cost \$8. There is a \$4 delivery charge.

Create a table of values.

Number of Pizzas	1	2	3	4
Total Cost (\$)				

Is the relationship proportional? Explain.

Graph.

What is the slope?

Equation for the graph:

