Write this down!!

Slope is a rate.

We can identify it by words like:

per

each

for

every

1. A bank put $10 into a savings account when you opened the account. Eight weeks later, you have a total of $24. Assume you saved the same amount every week.

   a. If y is the total amount of money in the savings account and x represents the number of weeks, write an equation in the form $y = mx + b$ that describes the situation.

   beginning amount

   $m = 7/4$, $b = 10$, $y = \frac{7}{4}x + 10$

   $y = mx + b$

   $24 = m \cdot 8 + 10$

   $-10 \quad -10$

   $\frac{14}{8} = \frac{8m}{8}$

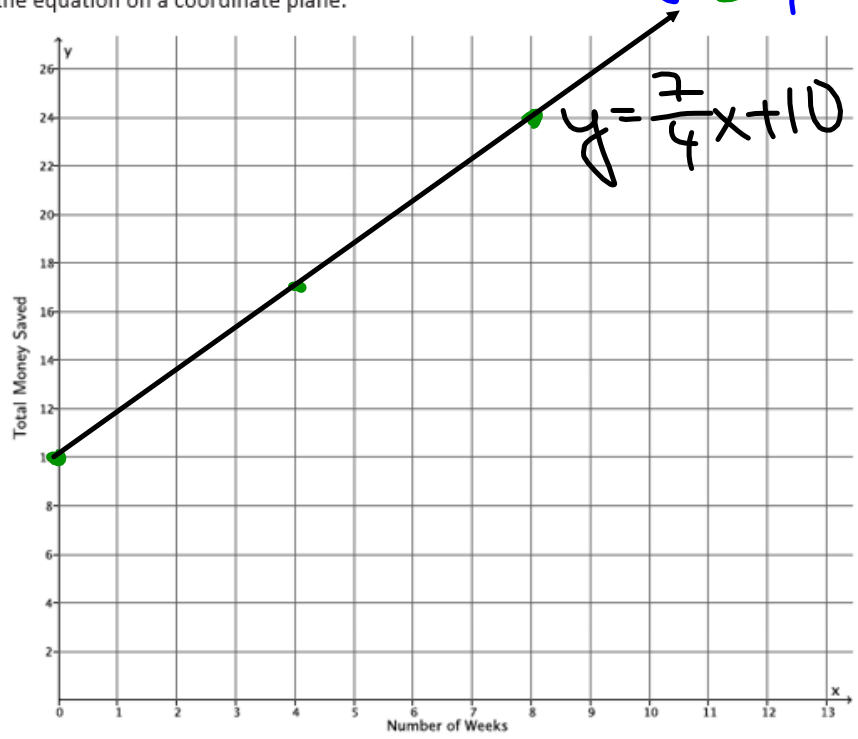
   $m = \frac{14 \div 2}{8 \div 2} = \frac{7}{4}$

   b. Identify the slope and the y-intercept point. What do these numbers represent?

   $b = 10$ = initial amount

   $m = \frac{7}{4}$ $1.75 per week

   c. Graph the equation on a coordinate plane.



   i. Could any other line represent this situation? For example, could a line through point (0,10) with slope $\frac{7}{5}$ represent the amount of money you save each week? Explain.

$y = mx + b$

2. A group of friends are on a road trip. After 120 miles, they stop to eat lunch. They continue their trip and drive at a constant rate of 50 miles per hour.

   a. Let y represent the total distance traveled, and let x represent the number of hours driven after lunch. Write an equation to represent the total number of miles driven that day.

m = rate = 50 miles per hour
b = 120 miles

$y = 50x + 120$

   b. Identify the slope and the y-intercept point. What do these numbers represent?

- y-intercept is initial # of miles
- slope is the rate at which our distance is changing.

   c. Graph the equation on a coordinate plane.

$b = 120$ $m = \frac{50}{1} = \frac{100}{2}$

   d. Could any other line represent this situation? For example, could a line through point $(0, 120)$ with slope 75 represent the total distance the friends drive? Explain.

No, this is the only line that represents this situation!