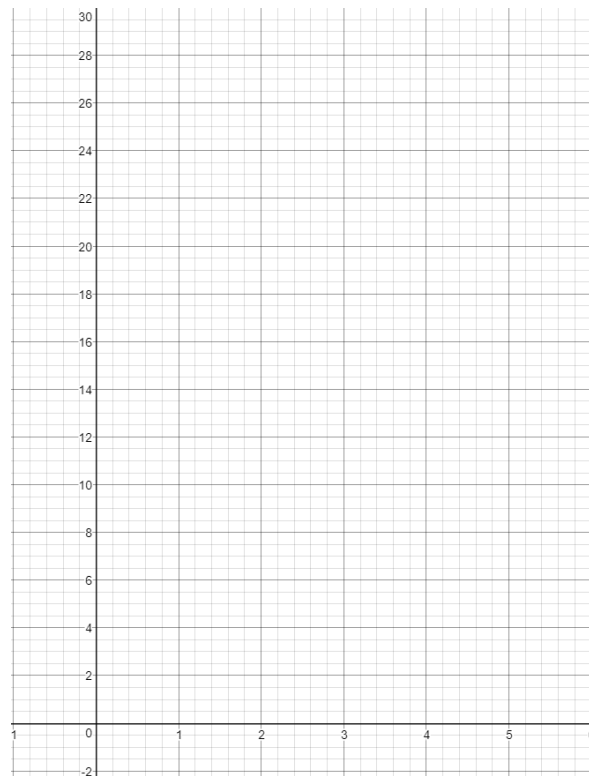


Slope-Intercept Form Worksheet

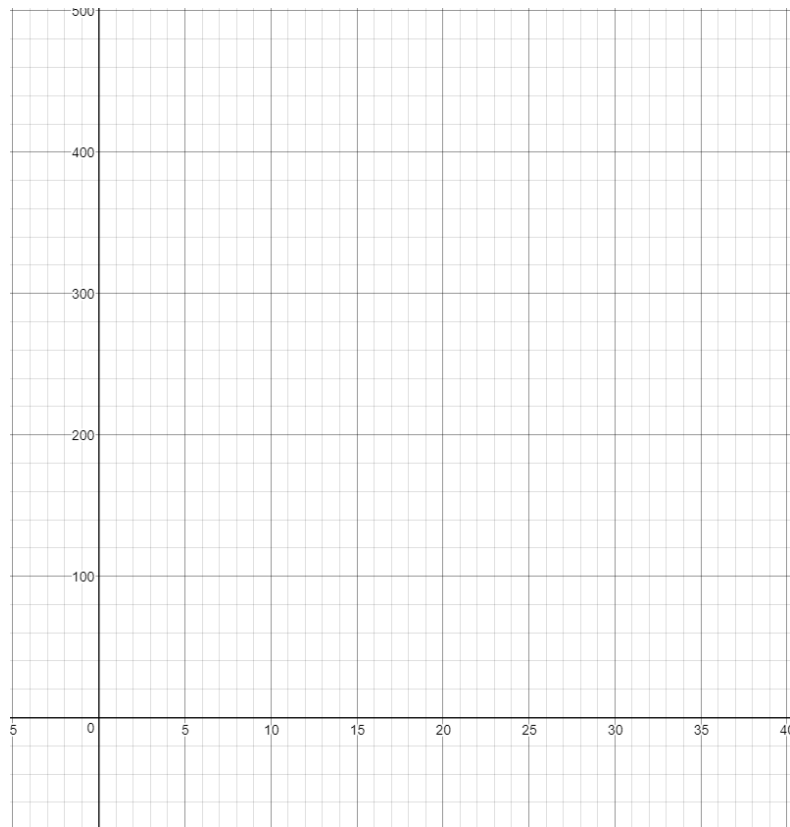
Write an equation in slope-intercept form to represent each scenario. Then, use the equation to answer the question. Show your work and use complete sentences.

1. Suppose that the water level of a river is 34 feet and that it is receding at a rate of 0.5 foot per day. Write an equation for the water level, L , after d days. In how many days will the water level be 26 feet?
2. For babysitting, Nicole charges a flat fee of \$3, plus \$5 per hour. Write and graph an equation for the cost, C , after h hours of babysitting. What do you think the slope and the y -intercept represent? How much money will she make if she baby-sits 5 hours?

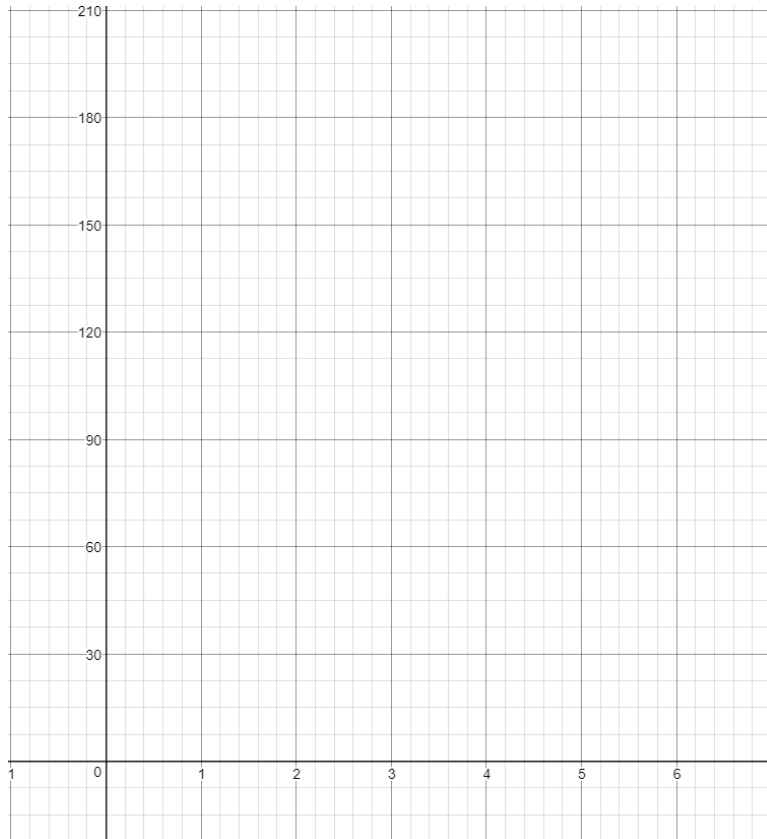


3. A plumber charges \$25 for a service call plus \$50 per hour of service. Write an equation in slope-intercept form for the cost, C , after h hours of service. What will be the total cost for 8 hours of work? 10 hours of work?

4. Rufus collected 100 pounds of aluminum cans to recycle. He plans to collect an additional 25 pounds each week. Write and graph the equation for the total pounds, P , of aluminum cans after w weeks. What does the slope and y-intercept represent? How long will it take Rufus to collect 400 pounds of cans?



5. A canoe rental service charges a \$20 transportation fee and \$30 dollars an hour to rent a canoe. Write and graph an equation representing the cost, y , of renting a canoe for x hours. What is the cost of renting the canoe for 6 hours?



6. A caterer charges \$120 to cater a party for 15 people and \$200 for 25 people. Assume that the cost, y , is a linear function of the number of x people. Write an equation in slope-intercept form for this function. What does the slope represent? How much would a party for 40 people cost?

7. Attorney A charges a fixed fee of \$250 for an initial meeting and \$150 per hour for all hours worked after that. Write an equation in slope-intercept form. Attorney B charges \$150 for the initial meeting and \$175 per hour. Find the charge for 26 hours of work for each attorney. Which is the better deal? At how many hours does this attorney become a better deal?
8. A video rental store charges a \$20 membership fee and \$2.50 for each video rented. Write a linear equation to model this situation. If 15 videos are rented, what is the revenue? If a new member paid the store \$67.50 in the last 3 months, how many videos were rented?
9. A water tank already contains 55 gallons of water when Baxter begins to fill it. Water flows into the tank at a rate of 8 gallons per minute. Write a linear equation to model this situation. Find the volume of water in the tank 25 minutes after Baxter begins filling the tank.

Slope-Intercept Form Answer Key

Write an equation in slope-intercept form to represent each scenario. Then, use the equation to answer the question. Show your work and use complete sentences.

1. Suppose that the water level of a river is 34 feet and that it is receding at a rate of 0.5 foot per day. Write an equation for the water level, L , after d days. In how many days will the water level be 26 feet?

$$L = -0.5d + 34$$

$$26 = -0.5d + 34$$

$$d = 16$$

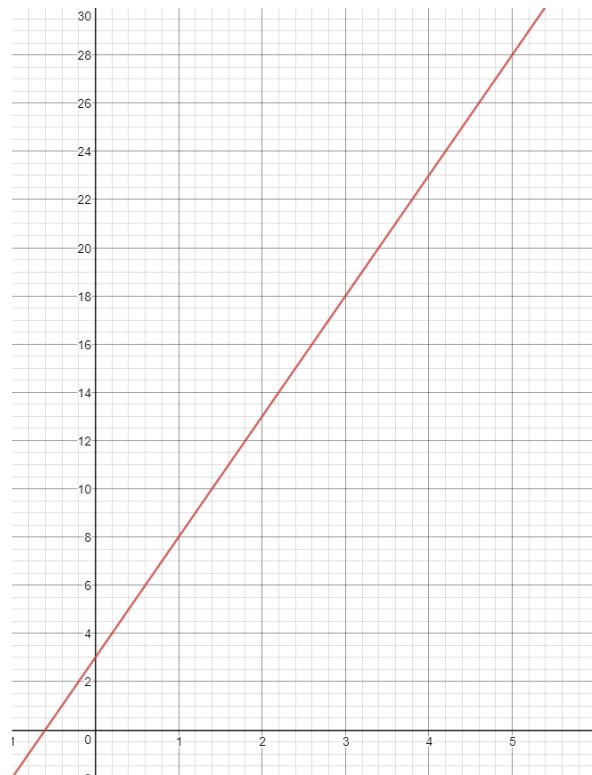
The water level will be 26 feet in 16 days.

2. For babysitting, Nicole charges a flat fee of \$3, plus \$5 per hour. Write and graph an equation for the cost, C , after h hours of babysitting. What do you think the slope and the y-intercept represent? How much money will she make if she babysits 5 hours?

$$C = 5h + 3$$

$$C = 5(5) + 3$$

$$C = 28$$



The slope represents the amount of money she makes in 1 hour. The y-intercept is what Nicole charges for 0 hours of babysitting. Nicole will make \$28 if she babysits for 5 hours.

3. A plumber charges \$25 for a service call plus \$50 per hour of service. Write an equation in slope-intercept form for the cost, C , after h hours of service. What will be the total cost for 8 hours of work? 10 hours of work?

$$C = 50h + 25$$

$$C = 50(8) + 25$$

$$C = 425$$

$$C = 50(10) + 25$$

$$C = 525$$

The cost for 8 hours of work is \$425. The cost for 10 hours of work is \$525.

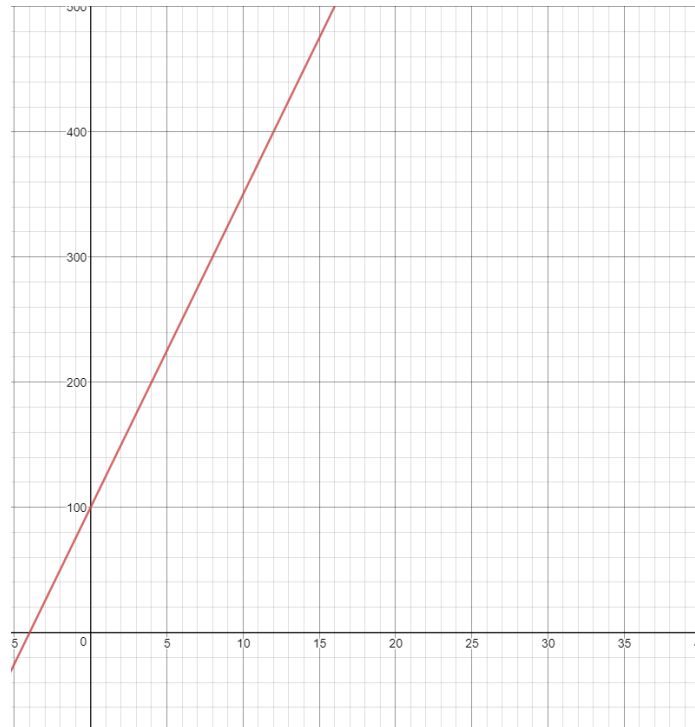
4. Rufus collected 100 pounds of aluminum cans to recycle. He plans to collect an additional 25 pounds each week. Write and graph the equation for the total pounds, P , of aluminum cans after w weeks. What does the slope and y-intercept represent? How long will it take Rufus to collect 400 pounds of cans?

$$P = 25w + 100$$

$$400 = 25w + 100$$

$$w = 12$$

The slope represents the pounds of cans Rufus collects in one week. The y-intercept represents the number of pounds of cans Rufus collected before he started collecting them every week. It will take Rufus 12 weeks to collect 400 pounds of cans.



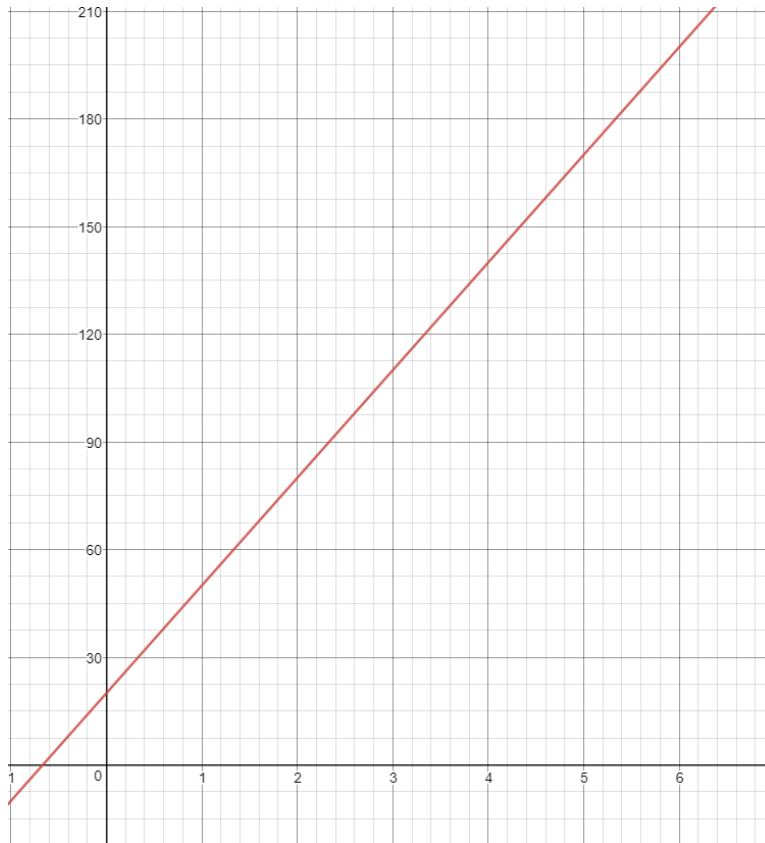
5. A canoe rental service charges a \$20 transportation fee and \$30 dollars an hour to rent a canoe. Write and graph an equation representing the cost, y , of renting a canoe for x hours. What is the cost of renting the canoe for 6 hours?

$$y = 30x + 20$$

$$y = 30(6) + 20$$

$$y = 200$$

The cost of renting the canoe for 6 hours is \$200.



6. A caterer charges \$120 to cater a party for 15 people and \$200 for 25 people. Assume that the cost, y , is a linear function of the number of x people. Write an equation in slope-intercept form for this function. What does the slope represent? How much would a party for 40 people cost?

$$y = 8x$$

$$y = 8(40)$$

$$y = 320$$

The slope represents that it costs \$8 per person to cater a party. A party for 40 people would cost \$320.

7. Attorney A charges a fixed fee on \$250 for an initial meeting and \$150 per hour for all hours worked after that. Write an equation in slope-intercept form. Attorney B charges \$150 for the initial meeting and \$175 per hour. Find the charge for 26 hours of work for each attorney. Which is the better deal? At how many hours does this attorney become a better deal?

$$\begin{aligned}\text{Attorney A} \\ y &= 150x + 250 \\ y &= 150(26) + 250 \\ y &= 4150\end{aligned}$$

$$\begin{aligned}\text{Attorney B} \\ y &= 175x + 150 \\ y &= 175(26) + 150 \\ y &= 4700\end{aligned}$$

Attorney A charges \$4150 for 26 hours of work.

Attorney B charges \$4700 for 26 hours of work.

Attorney A is the better deal because they charge less for the same amount of work. Attorney A becomes a better deal at 4 hours.

8. A video rental store charges a \$20 membership fee and \$2.50 for each video rented. Write a linear equation to model this situation. If 15 videos are rented, what is the revenue? If a new member paid the store \$67.50 in the last 3 months, how many videos were rented?

$$y = 2.50x + 20$$

$$y = 2.50(15) + 20$$

$$y = 57.50$$

The revenue is \$57.50 if 15 videos are rented.

$$67.50 = 2.50x + 20$$

$$x = 19$$

If a new member paid the store \$67.50, 19 videos were rented.

9. A water tank already contains 55 gallons of water when Baxter begins to fill it. Water flows into the tank at a rate of 8 gallons per minute. Write a linear equation to model this situation. Find the volume of water in the tank 25 minutes after Baxter begins filling the tank.

$$y = 8x + 55$$

$$y = 8(25) + 55$$

$$y = 255$$

The volume of the water is 255 gallons after 25 minutes.