

Word problems: linear functions (part 3)

- 21.** Rufus collected 100 pounds of aluminum cans to recycle. He plans to collect an additional 25 pounds each week. Write and graph the equation in slope-intercept form 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?
- 22.** 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?
- 23.** A video rental store charges a \$20 membership fee and \$2.50 for each video rented. Write and graph 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?
- 24.** Casey has a small business making dessert baskets. She estimates that her fixed weekly costs for rent and electricity are \$200. The ingredients for one dessert basket cost \$2.50. If Casey made 40 baskets this past week, what were her total weekly costs? Her total costs for the week before were \$562.50. How many dessert baskets did she make the week before?
- 25.** Graph $y = x$, $y = 2x$, and $y = 3x$ on the same coordinate plane. How are the graphs alike? How are they different? Compare the slopes.
- 26.** Tim buys a new computer for his office for \$1200. For tax purposes, he declares a linear depreciation (loss of value) of \$200 per year. Let y be the declared value of the computer after x years. What is the slope of the line that models this depreciation?
Find the y-intercept of the line. Write a linear equation in slope-intercept form to model the value of the computer over time. Find the value of the computer after 4.5 years.
- 27.** A bus company took a tour bus on the ferry when there were 30 people aboard. The ferry charged the bus company \$180. The following week, the bus had 50 people on board and the ferry charged them \$220. How much is the "base rate" for the empty bus? How much does each person cost?
- 28.** Jim has to choose between two gym membership plans. Plan A: \$50 monthly membership fee and \$10 per visit. Plan B: costs \$25 monthly one time membership fee and \$15 per visit. Which plan does offer a better deal and why?
- 29.** A Pizza restaurant offers the following deals”
Deal #1: \$8.99 for on large pizza and \$5 for each additional large pizza on the same order
Deal#2: \$6.00 per large pizza
- At what number of pizzas does Deal #1 become a better deal?
 - What is the cost of 10 pizzas for each deal?
 - What is the cost per pizza in Deal #1?
 - Which one is the better deal and why?