**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Writing and Evaluating Functions**

**Read each problem then do what is asked. Show your work! Circle your final answer.**

1. The function represents the surface area of a cube with edges of length *s*. What is the surface area of a cube with edge length of 3 inches?
2. The function models a household’s monthly long-distance charges, where *x* represents the number of minutes of long-distance calls during the month. What is the monthly charge for *C(73)*?
3. A 20-inch tall candle is burning 2.5 inches per hour.
   1. Write a function to represent the height of the candle after burning several hours.
   2. How high will the candle be after 5 hours?
4. Horizon Cellular Phone Company has a plan of $19.99 a month and charges 30 cents per text message.
   1. Write a function to represent the total cost of using that plan for the month.
   2. How much would you pay for a month if you sent 25 text messages?
5. You and your friends would like to watch a basketball game in Greensboro. The ticket costs $18 each and $15 to park.
   1. Write a function to represent the total amount you pay in attending the ball game.
   2. How much would you pay if you have 6 people in the group?
6. A shipping company charges a flat rate fee of $50 plus $2.50 for each pound.
   1. Write a function to represent the amount you would pay to send a package.
   2. How much would it cost you to ship a 15-pound package?
7. It is 70 degrees in your house and the temperature is decreasing 4 degrees every hour.
   1. Write a function to determine the temperature in your house after x hours has passed.
   2. What is the **unit rate** of change for the temperature in your house?
8. Crazy Moves Dance Company charges a membership fee of $75 and $15 per session. Jazz Company charges only $25 per session.
   1. Write a function to represent the total amount you would pay at Crazy Moves Dance Company. Use C(x).
   2. Write a function to represent the amount you would pay at Jazz Company. Use J(x).
   3. How much would you pay if you enroll at Crazy Moves Dance Company and attends 5 sessions?
   4. How much would you pay at Jazz company if you are going to attend 4 sessions?
   5. If you plan to attend 8 sessions, which company is cheaper? Explain why.
9. A cell phone company charges a monthly fee of $39.99 plus 5 cents per minute over 300 minutes.
   1. Write a function to determine the total monthly charge in using the cell phone.
   2. How much would you pay if you used 500 minutes in a month?
   3. How much is your total cost if you used 450 minutes?
10. A new car is worth $24,000 but depreciates $1500 in value each year.
    1. Write a function for the value of the car after x years.
    2. How much does the car start out being worth?
    3. How much does the price change each year? Does it go up or down?
11. Austin earns $250 per month selling cars, as well as a 15% commission on his sales, x.
    1. Write a function to determine his total monthly paycheck.
    2. How much would he make if he sold $12,000 worth of cars?

**Evaluate:**

1. f(x) = 4x – 5 for f(3)
2. f(x) = -10 – 3x for f(10)

**Rewrite the functions below by changing the order of the terms.**

1. y = -5x + 3
2. y = 10 – 7x
3. y = 4x – 20
4. ***Annie bought 3 cans of Campbell’s soup and 6 boxes of soda. The total bill was $28.44.***
   1. Write an equation to relate the cost for each Campbell soup and soda.
   2. If each Campbell’s soup costs $1.50, how much was each box of soda costs?

***18. Jamie invested her money at two different banks. One bank pays her 4% simple interest and the other bank pays her 8%. After a year, she earned a total of $360 in interest for the two investments. (Note: Convert your percents into decimal = divide by 100)***

1. Write an equation to represent the total interest she earned in a year.
2. If she invested $2000 at 8% interest, how much did she invest at 4%?