

Name:

Date:

Function Notation Word Problems

Worksheet J

1. Bathtub Problem: You pull out the plug from the bathtub. There are 13 gallons of water left in the tub. One minute after you pull the plug, there are 10 gallons left. Assume that the number of gallons varies linearly with the time since the plug was pulled. The equation that models the situation is: $f(x) = 13 - 3x$ where x represents the number of minutes that go by and $f(x)$ represents the amount of water left in the tub.

Find $f(3)$ and explain what it means in context of the problem.

Find $f(x) = 1$ and explain what it means in context of the problem.

2. As you drive home from the football game, the number of kilometers you are away from home depends on the number of minutes you have been driving. Assume that the distance varies linearly with time. Suppose you are 11 km from home when you have been driving for 10 minutes, and 7 km from home when you have been driving for 15 minutes. The equation that models the situation is: $g(k) = 11 - k$ where k represents the number of minutes you have been driving and $g(x)$ represents how many miles of driving you have left.

Find $g(2)$ and explain what it means in context of the problem.

Find $g(x) = 7$ and explain what it means in context of the problem.

3. Cricket Problem: Based on information in Deep River Jim's Wilderness Trailbook, the rate at which crickets chirp is a linear function of temperature. At 59°F they make 76 chirps per minute, and at 65°F they make 100 chirps per minute. The function representing this information is $c(d) = 4d$ where $c(d)$ represents the number of chirps and d represents the temperature in degrees F.

Find $c(90)$ and explain what it means in context of the problem.

Find $c(d) = 48$ and explain what it means in context of the problem.

4) A pool is being emptied at a rate of 5 cubic meters per hour. It currently holds 15 cubic meters. It is modeled by the equation: $f(h) = 15 - 5h$ where h represents the time in hours and $f(h)$ represents how much water is left in the pool.

Find $f(3)$ and explain what it means in context of this situation.

Find $f(h) = 0$ and explain what it means in context of this situation.

5) Elie received a sum of money for her birthday, which she spent at a rate of \$2 a day until she ran out of money. She started with \$42. This situation is modeled by the function $g(d) = 42 - 2d$ where d represents the number of days and $g(d)$ stands for how much money she has left.

Find $g(10)$ and explain what it means in context of this situation.

Find $g(d) = 30$ and explain what it means in context of this situation.

6) Eric works at a store. His hourly salary is \$9.25. The function that models this is $m(h) = 9.25h$ where h represents the number of hours he works and $m(h)$ represents how much money he gets paid.

Find $m(15)$ and explain what it means in context of this situation.

Find $m(h) = 370$ and explain what it means in context of this situation.

7) Lee went to the zoo. The company charges a fixed rate of \$5 to get in. It also charges an additional \$0.50 per animal you feed. The function representing this is this: $f(a) = 0.5a + 5$ where a represents the number of animals you feed and $f(a)$ represents your total amount spent at the zoo.

Find $f(4)$ and explain what it means in context of this situation.

Find $f(a) = 7.50$ and explain what it means in context of this situation.

8) Reggie reserved a hotel room for \$100. He then had to pay \$27 per hour that he used the room. The function representing this is here: $f(h) = 100 + 27h$ where h represents the number of hours that he used the room for and $f(h)$ represents the total cost for the room.

Find $f(3)$ and explain what it means in context of this situation.

Find $f(h) = 235$ and explain what it means in context of this situation.