Name: _____ Date: _____

Fresh Math

Defining Quantities for Modeling - Medium

Define the input and output variables, with units. Then write a model.

1. A car's tank holds 16 gallons and the car uses 2 gallons per hour on the highway.
2. A phone plan costs $30 a month plus $5 per gigabyte of data.
3. A plant is 6 cm tall and grows 2 cm per week.
4. A gym charges $50 to join plus $35 per month.
5. A phone plan costs $25 a month plus $5 per gigabyte of data.
6. A taxi charges $4 plus $2.5 per mile.
7. A gym charges $50 to join plus $30 per month.
8. A car's tank holds 16 gallons and the car uses 2.5 gallons per hour on the highway.
9. A plant is 10 cm tall and grows 1.5 cm per week.
10. A taxi charges $3 plus $2.5 per mile.

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Fresh Math

Defining Quantities for Modeling - Medium

What quantity, with what unit, would best describe each situation?

11. how good a deal a box of cereal is

12. how quickly a town's population grows

13. how productive a factory worker is

14. how well a car uses gas

15. how expensive electricity is

16. how quickly a pool fills

17. how heavy a material is for its size

18. how fast a car is going

19. how crowded a city is

20. how often a heart beats

Defining Quantities for Modeling – Medium – Answer Key

1. A car's tank holds 16 gallons and the car uses 2 gallons per hour on the highway.

   Let t = driving time in hours; G = gas left in gallons. G = 16 - 2t

2. A phone plan costs $30 a month plus $5 per gigabyte of data.

   Let g = data used in gigabytes; C = monthly cost in dollars. C = 5g + 30

3. A plant is 6 cm tall and grows 2 cm per week.

   Let w = time in weeks; h = height in centimeters. h = 2w + 6

4. A gym charges $50 to join plus $35 per month.

   Let m = number of months; C = total cost in dollars. C = 35m + 50

5. A phone plan costs $25 a month plus $5 per gigabyte of data.

   Let g = data used in gigabytes; C = monthly cost in dollars. C = 5g + 25

6. A taxi charges $4 plus $2.5 per mile.

   Let d = distance in miles; C = fare in dollars. C = 2.5d + 4

7. A gym charges $50 to join plus $30 per month.

   Let m = number of months; C = total cost in dollars. C = 30m + 50

8. A car's tank holds 16 gallons and the car uses 2.5 gallons per hour on the highway.

   Let t = driving time in hours; G = gas left in gallons. G = 16 - 2.5t

9. A plant is 10 cm tall and grows 1.5 cm per week.

   Let w = time in weeks; h = height in centimeters. h = 1.5w + 10

10. A taxi charges $3 plus $2.5 per mile.

    Let d = distance in miles; C = fare in dollars. C = 2.5d + 3

Defining Quantities for Modeling – Medium – Answer Key

11. how good a deal a box of cereal is

    unit price, in dollars per ounce

12. how quickly a town's population grows

    growth rate, in people per year (or percent per year)

13. how productive a factory worker is

    output rate, in items per hour

14. how well a car uses gas

    fuel efficiency, in miles per gallon

15. how expensive electricity is

    price per kilowatt-hour, in dollars per kWh

16. how quickly a pool fills

    flow rate, in gallons per minute

17. how heavy a material is for its size

    density, in grams per cubic centimeter

18. how fast a car is going

    speed, in miles per hour

19. how crowded a city is

    population density, in people per square mile

20. how often a heart beats

    heart rate, in beats per minute