More Unit 1 Questions Math 1 **Name:_____**

Answer each of the following. Show your work.

1) a) Jean has a house cleaning business. She charges $20 to come to your house and $7 per hour while cleaning. Write an equation to model how much money she makes per job using M for earnings and H for hours worked.

b) Give the slope for your equation in part a AND give its units.

c) If Jean visited a house and worked for 3 hours, give the amount of money she made. Make sure to give units with your answer.

d) How many terms are in your equation for part a? Explain the meaning of the constant term.

e) Jean wants to make $58 today to reach a goal she has. Use your equation to find how many hours she will need to clean at one house to make enough to reach her goal. Give your final answer in a way that makes sense.

2) A rectangular garden has a length of 30 yards and a width of 40 feet. Find the area of the garden in yards. Give units on your answer. (1 yd = 3 ft)

3) Give the area of the garden in #2 in feet. Give units on your answer.

4) Give the perimeter of the garden in #2. Give units.

5) The number of calories, (C), a person burns doing an activity can be approximated using the formula $C = kmt$, where m is the person's weight in pounds and t is the duration of the activity in minutes. Find the <u>units</u> for the coefficient k.

6) Convert the speed 52 mph to feet per minute. (1 mile = 5280 ft)

7) When Justin goes to work, he drives at an average speed of 65 miles per hour. It takes about 1 hour and 30 minutes for Justin to arrive at work. His car travels about 25 miles per gallon of gas. If gas costs $3.65 per gallon, how much money does Justin spend on gas to travel to work?

8) A donut shop sells an average of 36 dozen donuts to about 25 customers before lunch. Find the average sales rate with units donuts per customer.

9) Adam is tracking how many miles he runs each day in training for a marathon. Answer each question below.

a) Identify the independent quantity _____ and independent units _____.

b) Identify the dependent quantity _____ and dependent units _____.

c) If he ran 6 miles on the first day and 10 miles on the second day, find his rate of change for this AND give its units.

10) The formula for density *d* is $d = \frac{m}{v}$ where *m* is mass and *v* is volume. If mass is measured in kilograms and volume is measured in cubic meters, what is the unit for density?

11) The distance a car travels can be found using the formula $d = rt$, where *d* is the distance, *r* is the rate of speed, and *t* is time. How many miles does the car travel, if it drives at a speed of 70 miles per hour for 25 minutes? (Give units!)

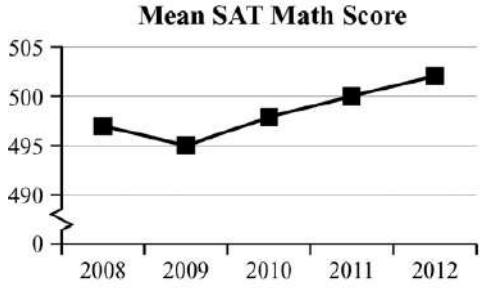
12) The number of calories burned during exercise depends on the activity. The formulas for two activities are given as $C_1 = 0.012mt$ and $C_2 = 0.032mt$. Answer the questions below.

a) If one activity is cooking and the other is bicycling, identify the formula that represents each activity. Explain your answer.

b) What value would you expect the coefficient to have if the activity were reading? Explain your answer.

13) When Lydia goes to visit relatives, she drives at an average speed of 60 miles per hour. It takes about 2 hour and 30 minutes for Lydia to arrive at their house. Her car travels about 22 miles per gallon of gas. If gas costs $3.42 per gallon, how much money does Lydia spend on gas to travel to her relatives' house?

Use the graph given to answer the questions below.



14) Why is there a break on the vertical axis of the graph?

15) Give the independent quantity _____ and units _____.

16) Give the dependent quantity _____ and units _____.

17) Give the units on the rate of change between years.

18) Is there a significant increase in the SAT score from 2009 to 2012? Explain. (Look at the graph closely!)