Name_____

Date_____ Period____

Assignment #_____

SB Lessons 9 & 10 Quiz Review

Show ALL work, tables and graphs on separate paper. Use graph paper for ALL graphs.

Determine whether each rate of change is constant. If it is, find the rate of change and explain what it represents.

1)

Miles Per Gallon

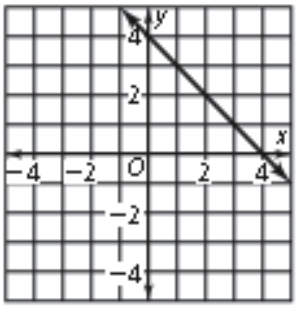
Gallons	Miles
1	28
3	84
5	140
7	196

2) The table shows the relationship between the wait time in minutes and the number of people in line.

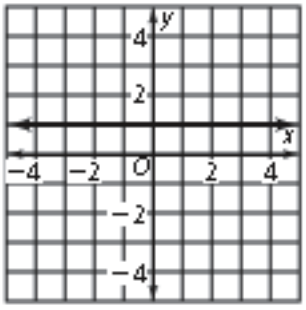
People in Line	
Number	**Wait Time (min.)**
3	12
6	24
9	36
12	48

Find the slope of each line

3.



4.



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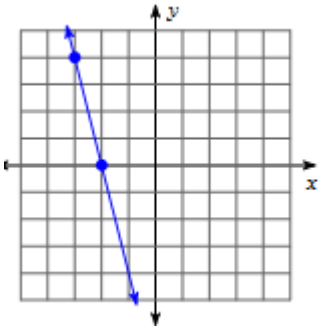
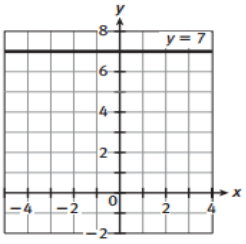


Find the slope of the line that passes through each pair of points.

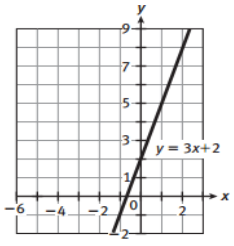
6. (-1, 6), (-1, 9) **7. (3, 5), (-4, -7)**

8. Identify the slope as positive, negative, zero, or undefined.

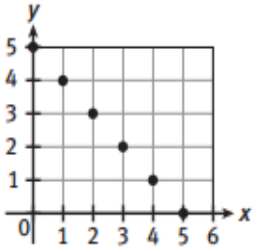
a)



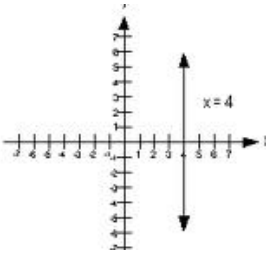
b)



c)



d)



Determine whether each equation represents a direct variation. If it does, find the constant of variation.

9. $y - 12 = 12x$ **10.** $12x = -36y$

Suppose y varies directly with x. Write a direct variation equations that relates x and y. Then, find the value of y when x = 8.

11. $y = 10$ **when** $x = 2$. **12.** $y = 2$ **when** $x = 5$.

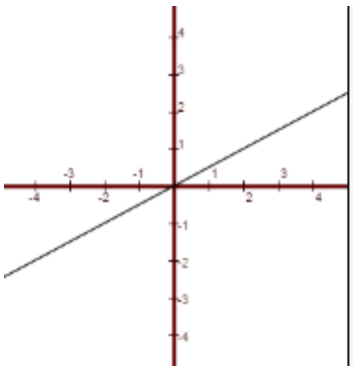
Graph each direct variation equation, using a table.

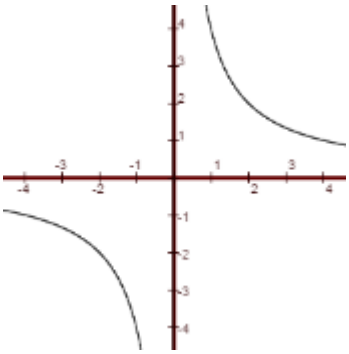
13. $y = -\frac{3}{4}x$

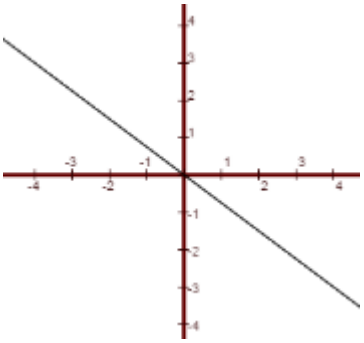
14. For the data in the table, tell whether y varies directly with x. If it does, write an equation for the direct variation.

x	y
2	−2.5
−7	8.75
5	−6.25

15. Determine whether the following graphs represent a direct variation. If yes, write an equation for the direct variation.

a) 

b) 

c) 

16. The value of y varies indirectly with the value of x, and the constant of variation is 5. What is the value of x when y = 10?

17. The amount of gas left in the gas tank of a car varies indirectly to the number of miles drive. There are 9 gallons of gas left after 24 miles. How much gas is left after the car is driven 120 miles?

18. The value of y varies indirectly with the value of x, and y=4 when x=20. What is the value of y when x=40?

19) Which equation(s) represent indirect variations?

a) $y = 2x$ **b)** $xy = -8$ **c)** $y = \frac{x}{3}$ **d)** $y = \frac{6}{x}$

Write a function for the given scenario.

20) A landfill has 50,000 tons of waste in it. Each month it accumulates an average of 420 more tons of waste. Write a function for the total amount of waste T(*m*) after *m* months.

21) A kennel charges $15 per day to board dogs. Upon arrival, each dog must have a flea bath that costs $12. Write a function for the total cost T(*n*) of *n* days of boarding plus a bath. What would be the total cost for a 4 day stay?

What is the inverse of each function?

22) $f(x) = 2x - 5$

23) $f(x) = \frac{3}{4}x + 1$

24) Amanda is starting her own hair bow business. The ribbon and other supplies will cost her $50. She plans to charge $5 per bow.

a) Write and graph a function *b*(*x*) for the profit Amanda will earn for selling *x* bows.
b) What is the y-intercept of the function? Describe what the y-intercept means in terms of profit.
c) How many bows must she sell to break even?
d) If Amanda wants to make a profit of $200, how many bows must she sell?

25) The function $f(x) = 9.25x$ gives the cost $f(x)$ for x tickets to a baseball game.

a. What is $f^{-1}(x)$?

b. What does x represent in the inverse function?

c. Tomika spent $46.25 on tickets. How many tickets did she buy?