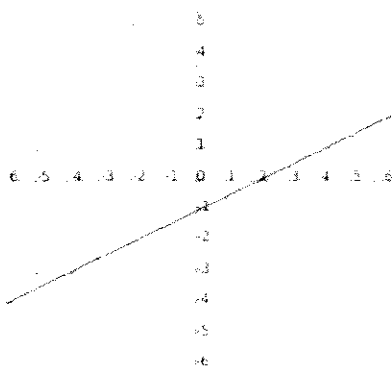


Please email me if you find any mistakes. Math 111
 Answers to Study Guide for Midterm Thanks!

1. Let c be the total cost (in dollars) of n tickets to a Cold Play concert. What is the dependent variable?

2. Use the graph to answer the questions.



- a) Find x when $y = 1$. **5**
- b) What is the slope of the line? **$\frac{1}{2}$**
- c) What is the y -intercept of the line? Write your answer as an ordered pair. **$(0, -1)$**
- d) What is the x -intercept of the line? Write your answer as an ordered pair. **$(2, 0)$**

3. Evaluate the following expressions for $a = 2$, $b = -5$, $c = -4$, and $d = 10$. Show all work for credit.

a) $\frac{a}{a} \div \frac{b}{c}$ $\frac{4}{25}$	b) $b^2 - 4ac$ 57	c) $\frac{-b-c^2}{2a}$ $-\frac{11}{4}$	d) $2c^2 - 5c + 3$ 55
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4. Perform the indicated operations and simplify your answers. Show all work for credit!

Unless otherwise specified, your answers should be integer or simplified fraction.

a) $2(5)^2 - 6 \div 2 + 1$ 48	b) $5[3 + 2(4 - 2)]$ 35	c) $9(4 - 6)^2 - 2(2 - 4)^3$ 52
d) $(-5)^2$ 25	e) $(\frac{3}{5})^2$ $\frac{9}{25}$	f) $\frac{-15(-8)}{10 - (-10)}$ 6

5. Use your calculator to perform the indicated operations. Round the result to two decimal places.

$18.67 - 36.9(22.4) + 12.38 \div 5.72$

6. For the following problems, let x be a number.

a) Subtract 14 from the quotient of the number and -2 .

i. Translate the English phrase into a mathematical expression.

$\frac{x}{-2} - 14$

ii. Evaluate the expression for $x = -14$. Show all work for full credit.

-7

b) 7 more than the product of -2 and the number

i. Translate the English phrase into a mathematical expression.

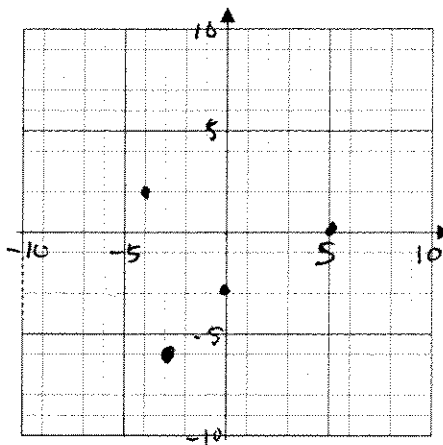
$-2x + 7$

ii. Evaluate the expression for $x = -14$. Show all work for full credit.

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7. Plot the ordered pairs below in a coordinate system.

$(-4, 2)$, $(5, 0)$, $(0, -3)$, $(-3, -6)$



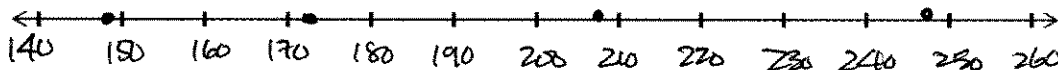
8. Use the slope formula to find the slope of the line that passes through the two given points. $(6, 7)$ and $(8, 1)$

a) Slope (Write your answer as an integer or simplified fraction): -3

b) Is the line increasing, decreasing, horizontal, or vertical? decreasing

9. The number of complaints (in thousands) of identity theft in the years 1999, 2000, 2001, and 2002 is, 148, 173, 208, and 247, respectively. Let n be the number of complaints (in thousands).

a) Use points on a number line to describe the values of n . Be sure to label the units on the number line.



b) Find the average of the values you plotted in part (a). Round your answer to the nearest integer.

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c) Did the number of complaints increase, decrease, stay approximately constant, or none of these between 1999 and 2002, inclusive? Explain your reasoning.

Increase - notice that the numbers are increasing in the original data set.

d) Did the increases in the number of complaints per year increase, decrease, stay approximately constant, or none of these between 1999 and 2002, inclusive. Explain your reasoning.

Increase - the distances between the points are increasing as you move from left to right on the number line

10. Consider the numbers below. Which of these numbers are the given type of number?

$\frac{4}{5}$, -3 , 0.2 , 0 , $-\pi$, 5.8 , $\sqrt{64}$, $-\sqrt{5}$

a) The counting numbers are: $\sqrt{64}$

b) The negative integers are: -3

c) The integers are: $-3, 0, \sqrt{64}$

d) The rational numbers are: $\frac{4}{5}, -3, 0.2, 0, 5.8, \sqrt{64}$

e) The irrational numbers are: $-\pi, -\sqrt{5}$

f) The real numbers are: $\frac{4}{5}, -3, 0.2, 0, -\pi, 5.8, \sqrt{64}, -\sqrt{5}$

11. Which of the given ordered pairs satisfy the given equation? Show all work for full credit.

$y = -5x + 8$

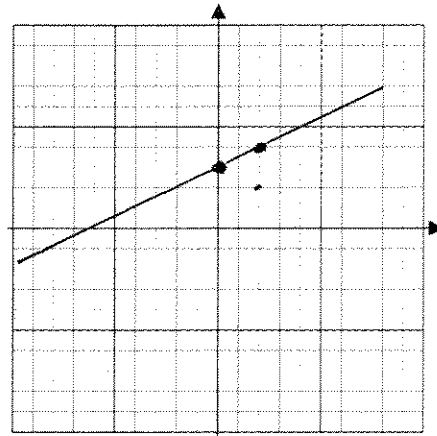
$(-2, 3)$, $(0, 8)$, $(3, -7)$

no, yes, yes

Summer 2009

12. Graph $y = \frac{1}{2}x + 3$

- a) y-intercept as an ordered pair: (0, 3)
 b) Slope: 1/2
 c) Graph



Math 111
Follow pattern

t	r
7	28
8	31
9	34
10	37

13. Let r be the revenue (in millions of dollars) of a company for the year that is t years since 2000. Some pairs of values of t and r are shown in the table to the right.

- a) Create a scattergram of the data. Then draw a linear model. Be sure to label your axes and the units.

t (years)	r (millions of dollars)
0	7
1	10
3	16
4	19
5	25

When was the revenue \$13 million? Write your answer in a complete sentence in the context of the problem.

$t = 2$ In 2002, the revenue was \$13 million

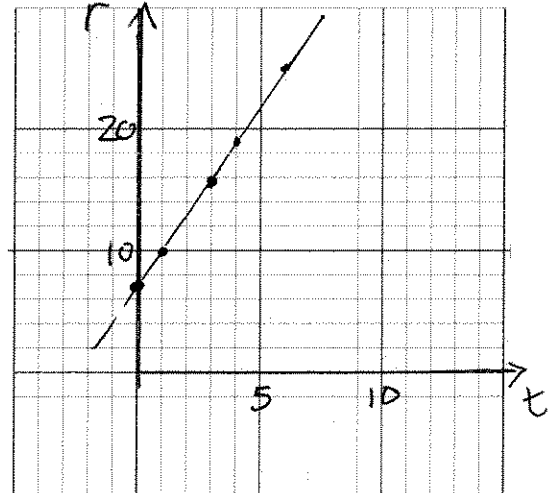
- b) Predict the revenue in 2010. Write your answer in a complete sentence in the context of the problem.

See table on top

In 2010, the revenue ~~is~~ is predicted to be \$37 million

- c) What is the r -intercept of the model? What does it mean in this situation? Write your answer in a complete sentence in the context of the problem.

(0, 7) In 2000, the revenue was \$7 million



14. Let n be the average number of cars sold per week by a car dealership at t years since 1990. What does the ordered pair (15, 25) represent? Write your answer in a complete sentence.

In 2005, the average number of cars sold per week by a car dealership was 25

15. Perform the indicated operations and simplify your answers. Show all work for credit!

Unless otherwise specified, your answers should be integer or simplified fraction.

a) $\frac{2}{11} \cdot \frac{3}{7}$ $\frac{6}{77}$	b) $\frac{2}{3} \div 6$ $\frac{1}{9}$	c) $\frac{3}{14} + \frac{5}{4}$ $\frac{41}{28}$
d) $-\frac{1}{11} - (-\frac{10}{11})$ $\frac{9}{11}$	e) $(\frac{3}{5})^2$ $\frac{9}{25}$	f) $\frac{3}{7}(-\frac{4}{5})$ $-\frac{12}{35}$

Notice this is an exact (in model)