

Show all work. NO WORK SHOWN = NO CREDIT

Total Possible Points = 125 Points

1) Solve the given formula for N $3N - MP = NS - 4A$ (8 points)

2) For the linear function $3x - 7y = 21$ **SHOW work to find** each of the following

a) Write the above function $3x - 7y = 21$ in slope-intercept form (3 points)

b) The slope is _____ (2 points)

c) The y-intercept is _____ (2 points)

d) The x-intercept is _____ (2 points)

3) Complete the following table: (6 points)

SCIENTIFIC NOTATION	CALCULATOR NOTATION	STANDARD FORM
$-2.35 \cdot 10^{-5}$		
		12,580,000
	2.09 E 4	

4) Do the following tables represent a Function or Not? EXPLAIN.

(6 points)

FUNCTION OR NOT? EXPLAIN		FUNCTION OR NOT? EXPLAIN																									
<table border="1" style="border-collapse: collapse; width: 100%;"> <thead> <tr> <th style="padding: 2px 5px;">x</th> <th style="padding: 2px 5px;">F(x)</th> </tr> </thead> <tbody> <tr><td style="padding: 2px 5px;">1</td><td style="padding: 2px 5px;">9</td></tr> <tr><td style="padding: 2px 5px;">2</td><td style="padding: 2px 5px;">8</td></tr> <tr><td style="padding: 2px 5px;">3</td><td style="padding: 2px 5px;">9</td></tr> <tr><td style="padding: 2px 5px;">4</td><td style="padding: 2px 5px;">8</td></tr> <tr><td style="padding: 2px 5px;">5</td><td style="padding: 2px 5px;">7</td></tr> </tbody> </table>	x	F(x)	1	9	2	8	3	9	4	8	5	7		<table border="1" style="border-collapse: collapse; width: 100%;"> <thead> <tr> <th style="padding: 2px 5px;">x</th> <th style="padding: 2px 5px;">G(x)</th> </tr> </thead> <tbody> <tr><td style="padding: 2px 5px;">2</td><td style="padding: 2px 5px;">8</td></tr> <tr><td style="padding: 2px 5px;">3</td><td style="padding: 2px 5px;">9</td></tr> <tr><td style="padding: 2px 5px;">4</td><td style="padding: 2px 5px;">11</td></tr> <tr><td style="padding: 2px 5px;">3</td><td style="padding: 2px 5px;">11</td></tr> <tr><td style="padding: 2px 5px;">2</td><td style="padding: 2px 5px;">12</td></tr> </tbody> </table>	x	G(x)	2	8	3	9	4	11	3	11	2	12	
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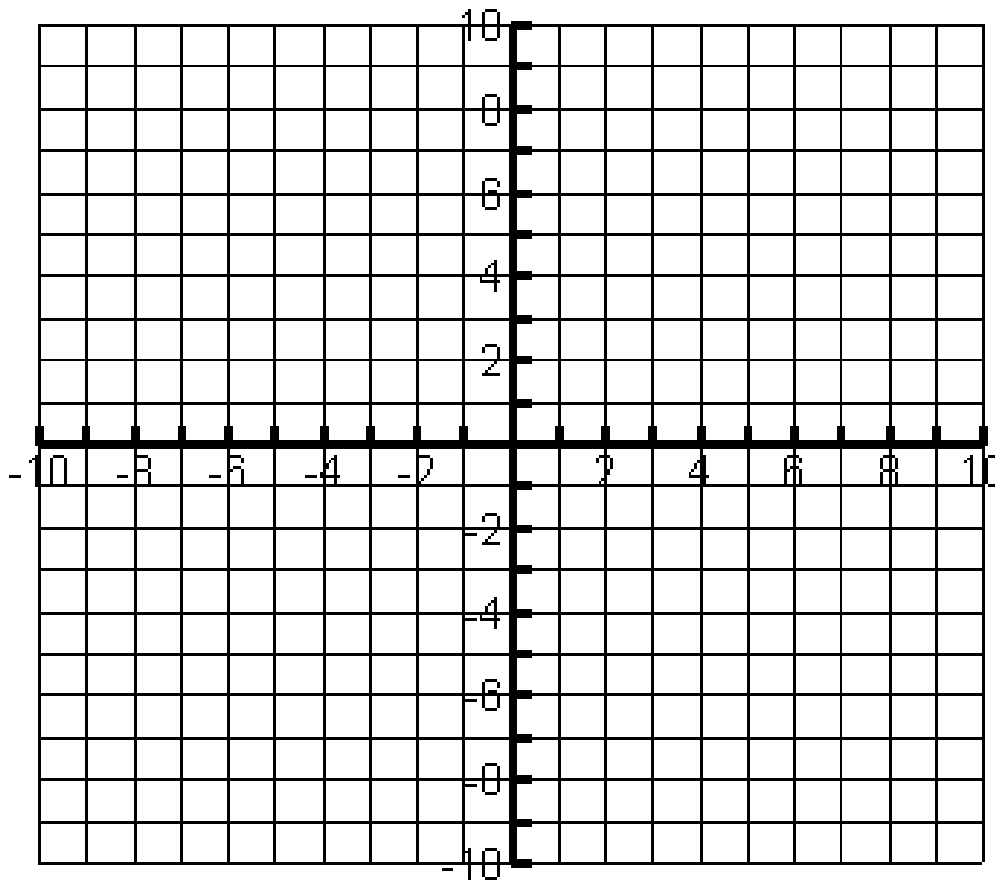
5) On the grid below, graph the given lines. Label each graph with the appropriate equation.

(9 points)

a. $y = -\frac{3}{2}x + 5$

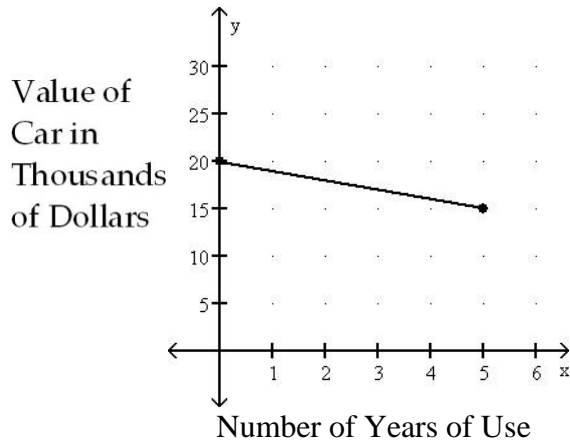
b. $y = 2$

c. $x = -4$



- 6) What is the slope of the line segment shown in the graph? The answer **MUST contain units.**
(Must Show Procedure)

(6 points)



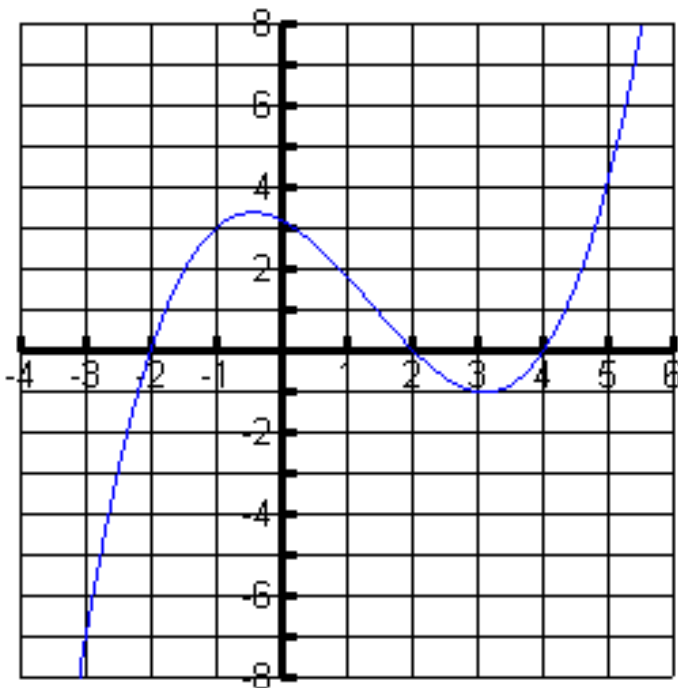
Interpret the slope as a rate of change **using words within the context of the problem.**

- 7) The following function gives an approximation for the length of the thigh bone of a woman, as a function of her height, x . $f(x) = 0.432x - 10.44$ (Both variables in inches)

- a) Estimate the length of the thigh bone of a 69 inches tall woman. (Round to the nearest tenth of an inch). Answers **MUST** contain units. (4 points)

- b) An anthropologist discovers a thigh bone of a woman. If the bone is 16 inches long, how tall would you estimate the woman to have been? (Round to the nearest tenth of an inch)
Answers **MUST** contain units. (4 points)

8) The graph below is a graph of $f(x)$



- a. Find the approximate value of $f(-3) =$ _____ (2 points)
- b. Approximate the solution to $f(x) \cong -3$. The solution is _____ (2 points)
- c. State the domain in Interval notation: _____ (1 point)
Inequality notation: _____ (1 point)
- d. State the range in Interval notation: _____ (1 point)
Inequality notation: _____ (1 point)
- e. What are the x-intercepts? _____ (2 points)
- f. What is the y-intercept? _____ (2 points)

9) Let $f(x) = -2x^2 + 5x - 8$ and $g(x) = -3x + 9$ (Must Show Procedure) (2 points each)

a. Find $f(-1)$	b. Find $g(-5)$
c. Find x when $g(x) = 14$	d. Find the x -intercept of $g(x)$
e. Find $g(a+1)$	f. Find $g(a) - 1$

10) **Jury Awards in Medical Malpractice.** The average jury awards in medical malpractice were 1.2 million dollars in 1994, and 3.4 million dollars in 1999.

a) Assuming they follow a linear pattern, find an equation for the average amount of jury award $A(t)$ in millions of dollars as a function of t , number of years since 1994. (7 points)

b) What is the y -intercept? What is the meaning within the context of the problem? (3 points)

c) Based on the model in part (a), find the average jury award in the year 2000. (3 points)

11) Write an equation of the line that passes through $(-2, 3)$ and is parallel to the line $4X + 7Y = 10$. Give final answer in the slope intercept form. **(Must Show Procedure)**

(10 points)

12) Simplify each of the following. Write answers with positive exponents. Do not use decimals. (Assume no variables are equal to zero.) **(Must Show Procedure)**

(12 points)

a) $\left(\frac{2y^5z^3}{y^{10}z^{-4}}\right)^{-2}$

b) $(-5a^{-1}b) \cdot (-2)^{-3}$

13) Solve the following equation $\frac{-3x}{4} = \frac{5}{3}x - 2$ (Must Show Procedure)

(8 points)

14) If the slope of a line is $m = \frac{2}{3}$, then, the slope of a perpendicular line is _____

(2 points)

15) The slope of a horizontal line is _____

(2 points)

16) The slope of a vertical line is _____

(2 points)