

## MidTerm Review Chapters 1-8

Date \_\_\_\_\_ Period \_\_\_\_\_

**CHAPTER 1****Evaluate each expression. Clearly show work going DOWN! Circle final answer. (8points)**

1)  $5 \cdot 3 \div 3 + 5 \cdot 3$

2)  $10 \div (4 - 2) + 2 + 5$

3)  $(5 + 4) \cdot 3 - 5(4 + 1)$

4)  $5 + 1 - (3 + 1 - (6 - 3))$

5)  $(1 + 7 - 5) \div 3 + 2^3$

6)  $\frac{(2 + 3) \cdot 3}{3 + 2 - 2}$

**Evaluate each using the values given. Show work clearly. Circle final answer. (8points)**

7)  $y^3$ ; use  $y = \frac{3}{5}$

8)  $x - 5 + (x - 3)^2$ ; use  $x = 6$

**Write each as an algebraic expression, equation, or inequality. (6points)**

9) the difference of  $n$  and 15

10) the quotient of  $n$  and 15 is 100

11) a number plus 10 is greater than or equal to 20

**Solve AND CHECK each equation. (8points)**

12)  $4 - 5x = -11$

13)  $5x - 5 = 45$

**BONUS: Solve(4pts) AND CHECK (2pts)**

14)  $5 + 4n - 9n - 1 = 24$

**Evaluate each function; and write using function notation.**

**For example --->  $f(\#)=\#\#$**

15)  $g(n) = 3n + 3$ ; Find  $g(4)$ ,  $g(-2)$

16)  $h(x) = 3x + 2$ ; Find  $h(1)$ ,  $h(-2)$

17)  $f(x) = 2x + 4$ ; Find  $f(1)$ ,  $f(-2)$ ,  $f(0)$

18)  $p(x) = 3x$ ; Find  $p(8)$ ,  $g(-2)$

19)  $f(x) = x^2 + x$ ; Find  $f(10)$  Find  $f(-5)$

## CHAPTER 2

**(1pt) Determine which numbers are integers. Circle the numbers that are integer.**

20)  $\sqrt{81}$

21) 4.5

22)  $\frac{12}{5}$

23) -4

**(1pts) Name the number either rational or irrational. Abbreviate: R=rational; IRR=irrational**

24)  $\sqrt{25}$

25)  $\sqrt{32}$

26) 2.5

27)  $\pi$

28) (4pts) Arrange numbers  $\frac{1}{2}$ , -1, 0,  $\sqrt{25}$ , -5, 3,  $\frac{5}{2}$  in ascending order (least to greatest).

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**(8 pts) For the following expression, identify...**

29)  $-2x^2 + 3 + x^2 - 4x - 5 - x^3$

Terms \_\_\_\_\_

Like terms \_\_\_\_\_

Coefficients \_\_\_\_\_

Constant terms \_\_\_\_\_

**(3pts) Evaluate each expression. CLEARLY SHOW WORK AND CIRCLE ANSWER.**

30)  $|-6 + 2|$

31)  $|2 \cdot -3|$

**(4pts) Find each sum. Show work! TIP: add negative numbers and add positive numbers**

32)  $(-5) + 3 + 5 + (-5)$

33)  $(-8) + 8 + 4 + (-2)$

**Rewrite each expression as an Addition problems (2pts).  
Then evaluate and circle your answer (1pts)**

34)  $(-8) - 3 - (-6)$

35)  $3 - 4 - (-3)$

**(2pts) Evaluate each expression**

36)  $(3)(-2)(-1)(-1)$

37)  $(2)(2)(-1)(-4)$

**(3pts) Find each quotient. Clearly show work.**

38)  $-9 \div \frac{-3}{4}$

39)  $\frac{-6}{5} \div 2$

**(3pts) Evaluate each expression. Clearly show your steps.**

40)  $-3 \cdot 4 - 2 + 4$

41)  $5(-6 + 2) + 5$

**(4pts) Simplify each expression. Write in standard form (variable term first and constant last)**

42)  $2(2x - 4)$

43)  $-2(3x - 2)$

44)  $n + 10 + 5n + 6$

45)  $-2n + 10 + 12n - 15$

46)  $\frac{20x - 80}{10}$

47)  $\frac{10x - 20}{-5}$

48)  $-(-3x + 10) + 40$

49)  $-2(x - 3) - 3x$

**Evaluate each using the values given. Show the substitution (2pts) then evaluate (1pt).**

50)  $(r)(q^2)$ ; use  $q = 2$ , and  $r = -4$

51)  $4x - z$ ; use  $x = -2$ , and  $z = -6$

### CHAPTER 3

**Solve and Check! Show work clearly. Circle solution. (6 points each)**

52)  $10 - 5x = 3x - 3 - 3$

53)  $7(7 - 3x) = -x - 31$

54)  $-6 - 2(-2 - x) = 5 + 3x$

55)  $2(x + 7) = 2(4 - 2x) + 6$

$$56) 2(4 + 3x) + x = 6x - (x + 4)$$

$$57) -4(x + 4) + 6(x - 7) = 2x + 8$$

$$58) \frac{5}{3}x + 50 = -100$$

**Solve each proportion and Check! Show work clearly. Circle solution. (6 points each)**

$$59) \frac{3}{6} = \frac{9}{-x}$$

$$60) \frac{n}{9} = \frac{n + 8}{3}$$



- 61) Write the equation in function form:  
 $10x - 2y = 20$

**Write a proportion. Solve and Check! Show work clearly. Circle solution. (6 points each)**

- 62) What percent of 20 yards is 120 yards?                      63) 400% of what is 8 miles?

- 64) 6 is what percent of 120?    65) What is 40% of 80 days?

**Solve each word problem. Write a proportion. Clearly show your work used to answer the question. (5 points each)**

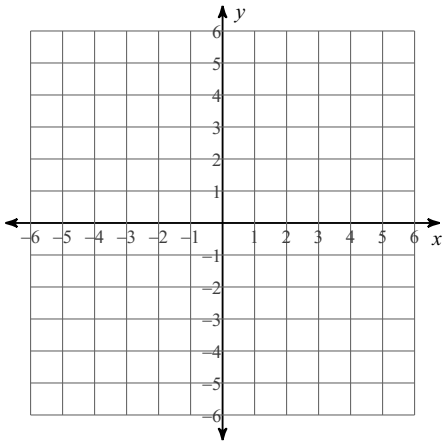
- 66) A recipe for oatmeal raisin cookies calls for 2 cups of flour to make 3 dozen cookies. How many cups of flour are needed to make 12 dozen cookies?

- 67) The ratio of weight on the moon to weight on Earth is 1 : 6. How many pounds would a 144-pound person weigh on the moon?

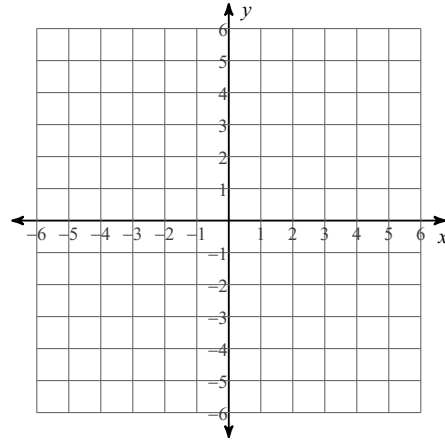
## CHAPTER 4

**TABLE METHOD:** Graph the linear function using table method Create a table with 3 points. Points must be integers.

68)  $x = 4$

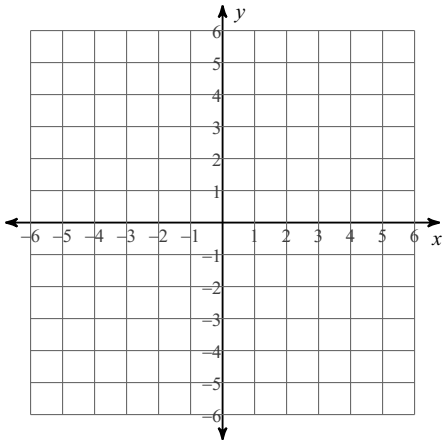


69)  $y = -\frac{2}{3}x + 3$

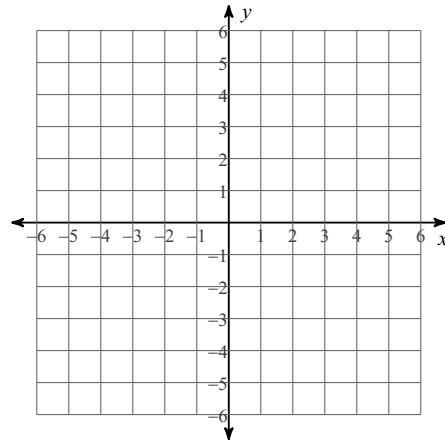


**INTERCEPT METHOD:** Graph linear function with intercept. (1) Identify x & y intercepts - x: \_\_\_\_; y: \_\_\_\_ (2) Label intercepts on the graph with the x and y.

70)  $5x - 3y = -15$

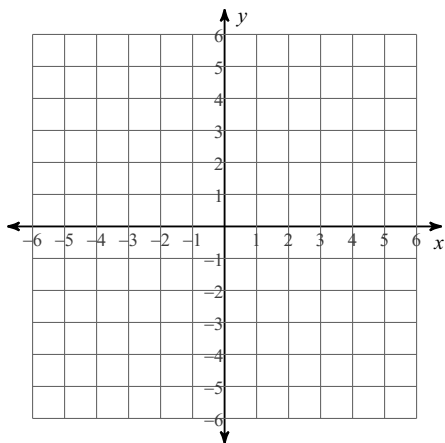


71)  $x - 2y = -4$

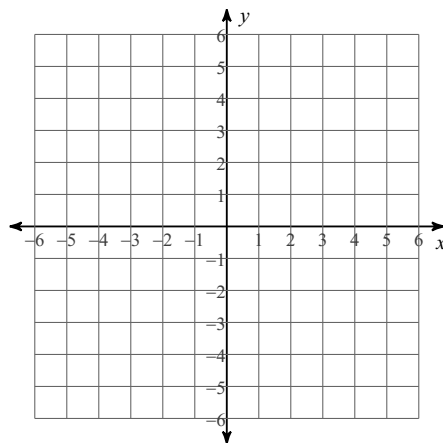


**SLOPE-INTERCEPT METHOD: Graph the linear function using slope and y-intercept. (1) Identify the slope & y-intercept with the correct variable names. (2) Clearly mark 3 points with a Y for the y-intercept.**

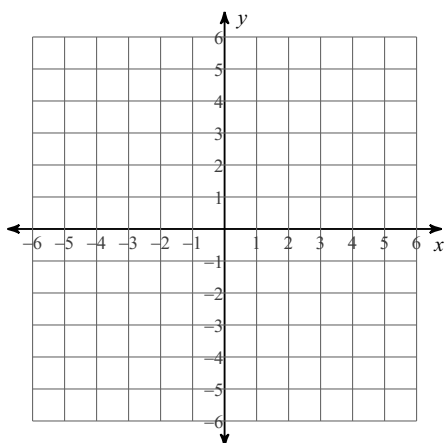
72)  $y = -x + 2$



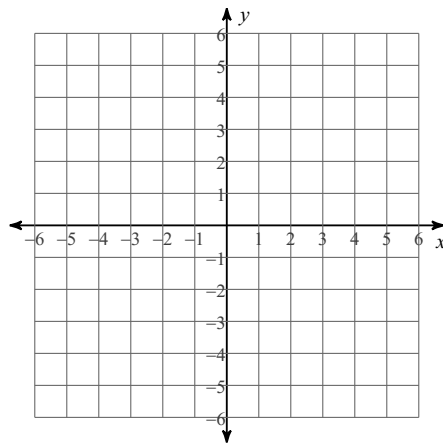
73)  $y = 3$



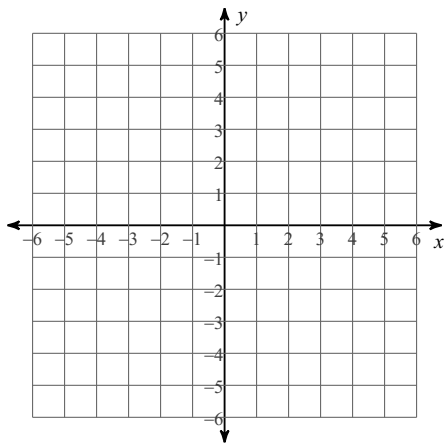
74)  $y = \frac{2}{5}x - 2$



75)  $x + 2y = 2$



76)  $4x - y = -4$



## CHAPTER 5

**INSTRUCTIONS: CLEARLY SHOW WORK FOR FULL CREDIT. (8pts each)**

**Write slope-intercept form of the equation of line given the slope & y-intercept.**

77) Slope =  $-4$ , y-intercept =  $\frac{1}{4}$

78) Slope =  $-\frac{6}{5}$ , y-intercept =  $-2$

**Write the point-slope form of the equation of the line through the given point with the given slope.**

79) through:  $(1, -5)$ , slope =  $2$

80) through:  $(-3, 2)$ , slope =  $-4$

**Write the SLOPE-INTERCEPT form of the equation of the line through the given points.**

81) through:  $(-5, -2)$  and  $(-2, 4)$

**Write the SLOPE-INTERCEPT form of the equation of the line through the given point with the given slope.**

82) through:  $(4, -3)$ , slope =  $-\frac{5}{4}$

**Write the SLOPE-INTERCEPT form of the equation of the line through the given points.**

83) through:  $(4, 4)$  and  $(0, 2)$

**Write the SLOPE-INTERCEPT form of the equation of the line through the given point with the given slope.**

84) through:  $(0, -3)$ , slope =  $-\frac{3}{2}$

**Write the POINT-SLOPE form of the equation of the line described.**

85) through:  $(-1, -4)$ , parallel to  $y = 2x - 1$

86) through:  $(3, 1)$ , perp. to  $y = \frac{3}{5}x - 3$

**Write the SLOPE-INTERCEPT form of the equation of the line described.**

87) through:  $(-4, -2)$ , parallel to  $y = \frac{3}{2}x + 1$

88) through:  $(2, 5)$ , perp. to  $y = -\frac{1}{5}x - 5$

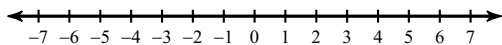
**Write the standard form of the equation of the line through the given points.**

89) through:  $(5, 3)$  and  $(-3, -3)$

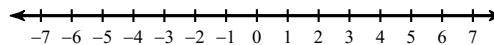
## CHAPTER 6

Draw a graph for each inequality.

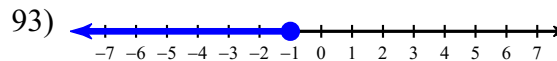
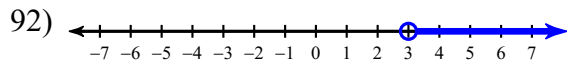
90)  $4 < n$



91)  $2 \geq p$



Write an inequality for each graph. Use the variable "X"



SOLVE each inequality. Circle the solution. Then GRAPH its solution.

94)  $9 + 4x - 8x < -5x - 1 + 4$

95)  $-13 - 2x \geq x + 4 + 7$

96)  $-12 + 3x \geq 3x - 6(4x + 6)$

97)  $7x + 16 < 4x + 3(x + 4)$

**Solve and graph its solution. THEN write as a "SINGLE" inequalities (i.e. #<x<# )**

98)  $10 - 5n \leq 4n - 8$  and  $-4n + 9 > -6 - n$

**SOLVE each COMPOUND inequality. Circle the solution. Then GRAPH its solution.**

99)  $-27 \leq 3 + 5n \leq 8$

100)  $-55 < -8x + 1 < 1$

101)  $-5x + 9 < 10x - 6$  or  $-4x - 8 > 7 - 3x$

102)  $9x + 10 \geq 6x + 4$  or  $-2x - 8 \geq -x + 10$

**BONUS (4pts) Solve the compound inequality**

103)  $4x + 7 < 7 - 3x$  and  $-4 - 3x > -3x + 10$

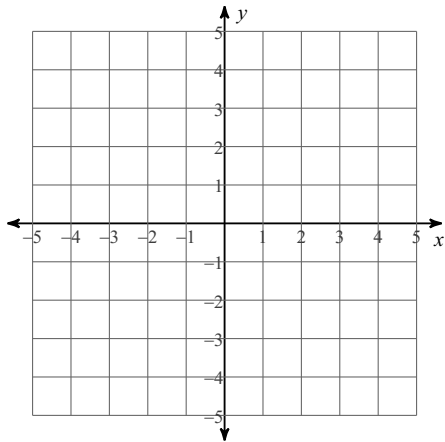
104)  $-8 + 3m > -1 + 10m$  or  $8m + 4 \geq 7m - 4$

## CHAPTER 7 - GRAPHING SYSTEMS

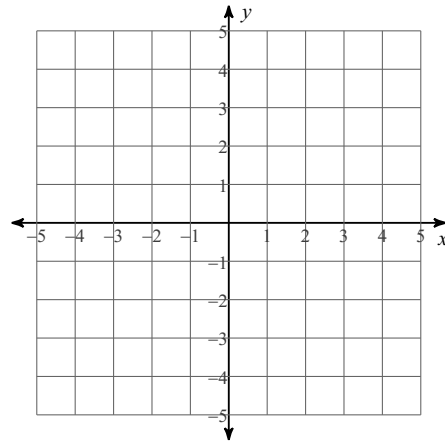
Solve each system by graphing (recommend checking)

105)  $y = -\frac{3}{2}x - 2$

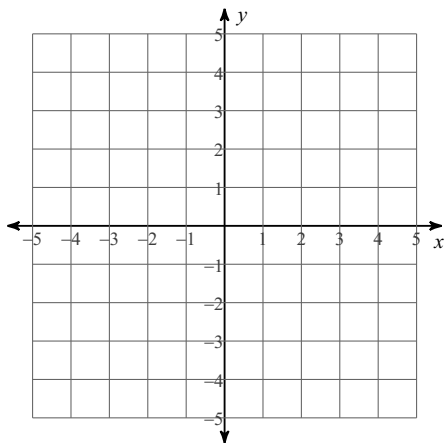
$$y = -\frac{1}{4}x + 3$$



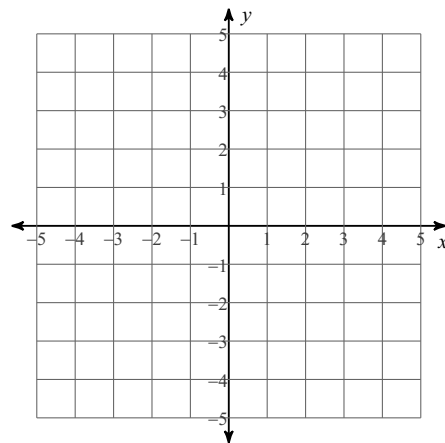
106)  $x + 2y = -4$   
 $x - 2y = 8$



107)  $x - y = -4$   
 $x - y = 4$



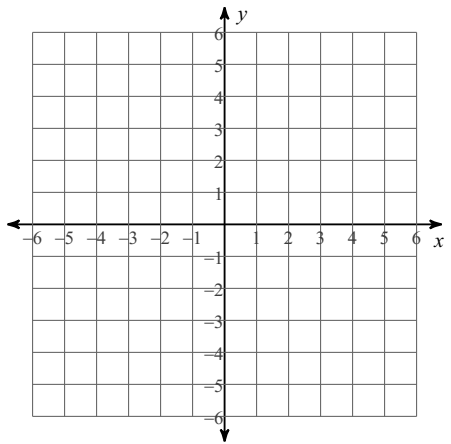
108)  $-y = 3 - x$   
 $-y + x = 3$



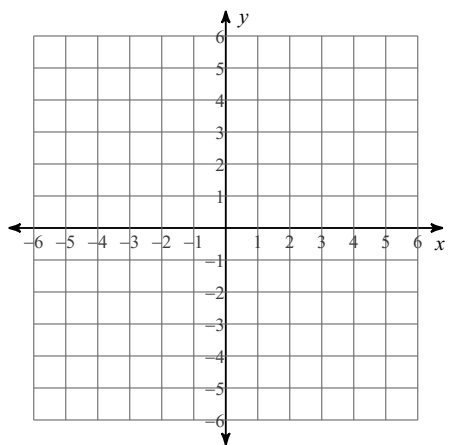


Sketch the graph of each linear inequality. Show a test point

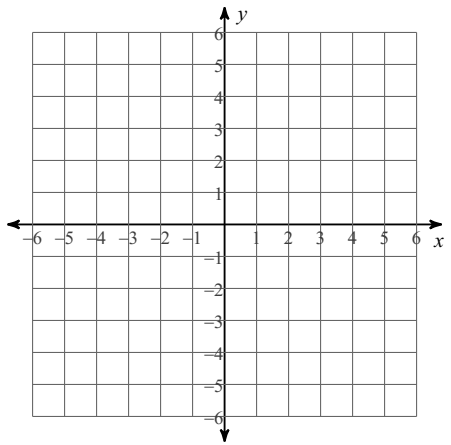
109)  $x \leq -1$



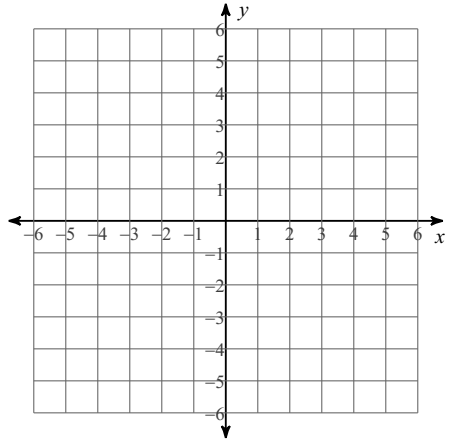
110)  $y < \frac{3}{5}x + 4$



111)  $y \leq -\frac{2}{3}x - 2$



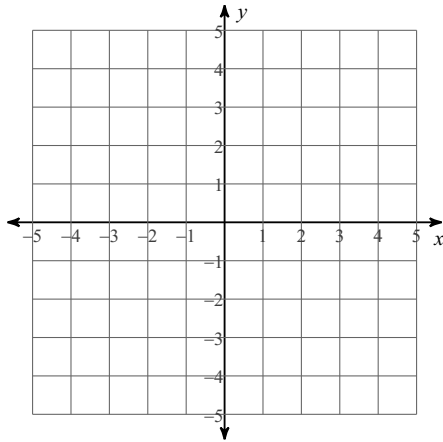
112)  $3x - 5y > -15$



Sketch the solution to each system of inequalities. Show a test point for each equation.

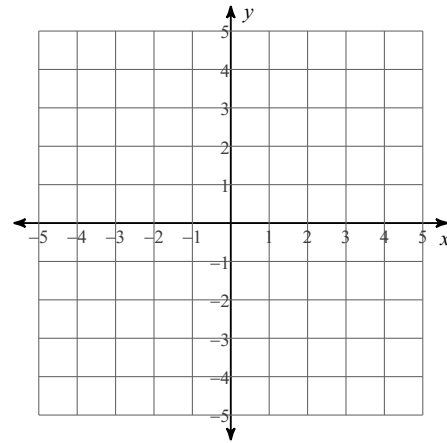
113)  $y \geq -\frac{4}{3}x - 2$

$y < -\frac{1}{3}x + 1$



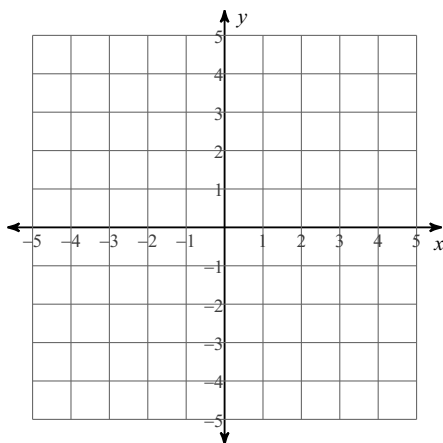
114)  $y \geq \frac{3}{2}x - 2$

$y > -x + 3$



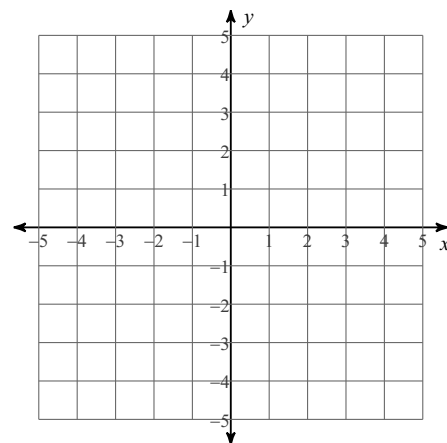
115)  $x \leq -3$

$x + y \leq -2$



116)  $y \leq -3$

$5x - y \geq -2$



**Tell whether the given point is a solution to the system of equation. Explain your decision.**

117)  $-x - 2y = 7$       Point  $(-5, -1)$   
 $2x - y = -11$

118)  $2x + 3y > -9$       Point  $(3, 3)$   
 $2x - 3y > -3$

119)  $2x + 3y > 9$       Point  $(3, 5)$   
 $2x - 3y < 3$

## CHAPTER 8 - NO CALC

Evaluate a numeric exponential power.

---> Clearly show work. SHOW how to expand the expression;

---> THEN EVALUATE. Circle your answer.

120)  $(-3)^3$

121)  $(-2)^6$

Evaluate numeric expressions with positive integer exponents, using the product, quotient, and power properties.

---> Clearly show work by SHOWing how you +,-,\* to SIMPLIFY EXPONENTS.

---> Provide the answer in BOTH exponential form and then evaluate

122)  $\frac{10^8}{10^4}$

123)  $\frac{2^6}{2^2}$

124)  $2^3 \cdot 2^4$

125)  $2 \cdot 2^2 \cdot 2^2$

126)  $(2^2)^3$

127)  $(10^2)^3$

Evaluate complex numeric expressions with whole number exponents demonstrating the ability to use the product, power, and quotient properties

---> Clearly show work by SHOWing how you +,-,\* to SIMPLIFY EXPONENTS.

---> Provide the answer in BOTH exponential form and then evaluate

128)  $(10^2 \cdot 10^3)^2$

129)  $\left(\frac{2^6}{2^3}\right)^2$

**Simplify. Clearly show work.**

130)  $-5x^3 \cdot 8x^4$

131)  $-2x^3 \cdot -6x$

132)  $4xy^2 \cdot -xy^3 \cdot 3xy^4$

133)  $3yx^4 \cdot 7x^2y^0 \cdot x$

134)  $\frac{20x^4y^4}{4x^2y^4}$

135)  $\frac{12x^2y^4}{18xy^2}$

136)  $(3xy^4)^4$

137)  $(4x^0y^4)^3$

138)  $(-2x^4y^3)^3$

139)  $(-6x^2y^3)^2$

**BONUS: Simplify. Your answer can contain only positive exponents. (3pts each)**

140)  $\frac{24x^{-3}}{36y^{-5}}$

141)  $\frac{6xy^{-4}}{2x^{-4}y^4}$