CHAPTER MODULE PREPARATION FORM-Chapter 3.3

This assignment is due back at the beginning of the next class. I will collect it and check it off during class.

CHAPTER EXPLANATION/SUMMARY

Describe in your own words the objective(s) of chapter 3.3.

This Chapter describes how to use the distance definition of absolute value, also absolute value equations and inequalities. Sometimes an absolute value equation or inequality requires some rewriting before it can be set up as a compound statement. Solving special cases of absolute value equations and inequalities. When a typical absolute value equation or inequality involves a negative constant or 0 alone on one side, use the properties of absolute value to solve. The absolute value of an expression can never be negative and the absolute value of an expression equals 0 only when the expression is equal to 0

VOCABULARY BUILDING

List and define in your own words some of the key words or phrases that will help you remember how to solve the chapter exercise problems. "absolute value"

The absolute value of a number (ex $|x|$ represents the distance from that # to 0 on the # line. ex $|x| = 4$ are 4 and -4.

ex. We interpret all the solution of $|x| > 4$ to be all #s more than 4 units from 0 the set $(-\infty, -4) \cup (4, \infty)$ fits this description. Because the graph would have two seperate intervals, the solution set is described using **or** ex $x < -4$ or $x > 4$ absolute value of a variable expression generally takes the form $|ax + b| = k$, $|ax + b| > k$ or $|ax + b| < k$, when solving absolute value equations and inequalities remember the following. - absolute value equations and absolute value inequalities in the form $|ax + b| > k$ translate into "or" compound statements. - absolute value inequalities in the form $|ax + b| < k$ translate into "and" compound

~~CONCEPTS OR EXAMPLES THAT STILL NEED CLARIFICATION~~

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statements, which can be written as three-part inequalities. also an "or" statement cannot be written in three parts.

Name

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WORK OUT THE FOLLOWING PROBLEMS IN ORDER TO PREPARE YOURSELF FOR THE CLASS Show all your steps if it takes several steps to complete the problem.

Solve each absolute value equation or inequality

1) $|X| = 12$

case 1

-12

case 1

12

2) $|Y-3| = 9$

case 1

-6

$Y-3=-9$

$+3 \quad +3$

$Y=-6$

case 2

12

$Y-3=9$

$+3 \quad +3$

$Y=12$

3) $|4R-5| = 17$

case 1

-3

$4R-5=-17$

$+5 \quad +5$

$\frac{4R}{4}=\frac{-12}{4}$

$R=-3$

case 2

$\frac{11}{2}$

$4R-5=17$

$+5 \quad +5$

$\frac{4R}{4}=\frac{22}{4}$

$R=\frac{11}{2}$

4) $\left|\frac{1}{2}x+3\right| = 2$

case 1

-10

$\frac{1}{2}x+3=-2$

$\frac{1}{2}x+3-3=-2-3$

$\frac{1}{2}x=-5$

$x=-10$

case 2

-2

$\frac{1}{2}x+3=2$

$\frac{1}{2}x+3-3=2-3$

$\frac{1}{2}x=-1$

$x=-2$

5) $|3x-1| \geq 8$

case 1

$(-\infty, -\frac{7}{3}]$

case 2

$[3, \infty)$

$-\frac{7}{3} \qquad 3$

$3x-1\geq 8$

$+1 \quad +1$

$\frac{3x}{3}\geq\frac{9}{3}$

$x\geq 3$

$3x-1\leq -8$

$+1 \quad +1$

$\frac{3x}{3}\leq\frac{-7}{3}$

$x\leq -\frac{7}{3}$

6) $|3r-1| \leq 11$

case 1

$\frac{-10}{3}$

case 2

4

$-\frac{10}{3} \qquad 4$

$3r-1\geq -11$

$+1 \quad +1$

$\frac{3R}{3}\geq\frac{-10}{3}$

$R\geq\frac{-10}{3}$

$3r-1\leq 11$

$+1 \quad +1$

$\frac{3R}{3}\leq\frac{12}{3}$

$R\leq 4$

7) $|2x+1|+3 > 8$

case 1

$(-\infty, -3) \cup$

$2x+1<-5$

$-1 \quad -1$

$\frac{2x}{2}<\frac{-6}{2}$

$x<-3$

case 2

$(2, \infty)$

$2x+1+3>8$

$-3 \quad -3$

$2x+1>5$

$-1 \quad -1$

$\frac{2x}{2}>\frac{4}{2}$

$x>2$

8) $|3x+1| = |2x+4|$

case 1

-1

$3x+1=-(2x+4)$

$-1 \quad -1$

$3x=-2x-5$

$+2x \quad +2x$

$\frac{5x}{5}=\frac{-5}{5}$

$x=-1$

case 2

3

$3x+1=2x+4$

$-1 \quad -1$

$3x=2x+3$

$-2x \quad -2x$

$\frac{1x}{1}=\frac{3}{1}$

$x=3$

PLEASE WORK ADDITIONAL PROBLEMS PRIOR TO CLASS. pages 201-205

CHAPTER MODULE PREPARATION FORM-Chapter 4.3

This assignment is due back at the beginning of the next class. I will collect it and check it off during class.

CHAPTER EXPLANATION/SUMMARY

Describe in your own words the objective(s) of chapter 4.3.

This Chapter shows how to find the ~~steep~~ slope of a line given two points. The Slope of a line tells how fast y changes for each unit of change in y in other words, The Slope gives the rate of change in y for each unit of change in X. A line with positive slope rises from left to right. A line with negative slope falls from left to right. Also shows Slopes of Horizontal and Vertical lines & Finding the slope of a line from its equation. We ~~find~~ get the two points by first Choosing two different Values for X and then finding the Corresponding Values of y, also discusses what parallel and perpendicular lines are.

VOCABULARY BUILDING

List and define in your own words some of the key words or phrases that will help you remember how to solve the chapter exercise problems. "slope", "slope formula", "slopes from equations", "parallel", "perpendicular"

Slope is a measure of Steepness of a line were you Compare the vertical Change in the line to the horizontal change, while moving along the line from one fixed point to another. Slope Formula - the Slope of the line through the points (x_1, y_1) and (x_2, y_2) is $m = \frac{\text{Change in } y}{\text{Change in } x} = \frac{y_2 - y_1}{x_2 - x_1}$ is $x_1 \neq x_2$. All Horizontal lines have Slope 0 since the difference in y-values is always 0. All points on a vertical line have the Same x-value, so all Vertical lines have undefined Slope, Because division by 0 is undefined ex$(\frac{6}{0})$. Finding the Slope of a line from its equation #1 - Solve the equation for y. #2 The Slope is given by the coefficient of X. Two lines with the Same Slope are parrallel. Two lines whose slope have a product of -1 are perpendicular. Parallel lines never intersect; Sometimes the lines may be neither of these.

CONCEPTS OR EXAMPLES THAT STILL NEED CLARIFICATION

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Name__

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WORK OUT THE FOLLOWING PROBLEMS IN ORDER TO PREPARE YOURSELF FOR THE CLASS Show all your steps if it takes several steps to complete the problem.

Work problems 3, 6 and 7 on page 261

#3) (-1, -3) (1, 5)

$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{5-(-3)}{1-(-1)} =$

$= \frac{8}{2} = 4$

#6) (-2, -3) (-2, 3)

$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{3-(-3)}{-2-(-2)}$

$= \frac{3+3}{-2+2} = \frac{6}{0}$

undefined slope

(-2, -4) (5, -4)

#7) $m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-4-(-4)}{5-(-2)}$

$= \frac{-4+4}{5+2} = \frac{0}{7} = 0$

Find the slope of the line through each pair of points

1) (1, -2), and (-3, -7)

$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-7-(-2)}{-3-1} = \frac{-7+2}{-3+(-1)} =$

$= \frac{-5}{-4} = \frac{5}{4}$

2) (-2, 4) and (-3, 7)

$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{7-4}{-3-(-2)} = \frac{3}{-1} = -3$

3) (4, 3), (-6, 3)

$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{3-3}{-6-4} = \frac{0}{-10} = 0$

4) (-12, 3) and (-12, -7)

$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-7-3}{-12-(-12)} = \frac{-10}{0}$

undefined slope

Find the slope of each line

5) y = 5x + 12

The slope is given by the coefficient of x, which is 5

6) $\frac{4y}{4} = \frac{x}{4} + \frac{1}{4}$

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

the slope is $\frac{1}{4}$

7) 3x – 2y = 3

$3x - 3x - 2y = -3x + 3$

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

$y = \frac{3}{2}x - \frac{3}{2}$ slope is $\frac{3}{2}$

In each pair of equations give the slope and determine if the two lines are parallel, perpendicular or neither

8) -4x + 3y = 4
-8x + 3y = 0

Neither

$-4x + 3y = 4$

$-4x + 3y + 4x = 4x + 4$

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

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

Slope is $\frac{4}{3}$

$-8x + 3y = 0$

$-8x + 3y + 8x = 8x + 0$

$\frac{3y}{3} = \frac{8}{3}x$

$y = \frac{8}{3}x$

Slope is $\frac{8}{3}$

9) 3x – 5y = -1
5x + 3y = 2

Perpendicular

Slope is $\frac{3}{5}$

$3x - 5y = -1$

$3x - 5y - 3x = -3x - 1$

$\frac{-5y}{-5} = \frac{-3x}{-5} - \frac{1}{-5}$

$y = \frac{3}{5}x + \frac{1}{5}$

$5x + 3y = 2$

$5x + 3y - 5x = -5x + 2$

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

Slope is $-\frac{5}{3}$

$\frac{3}{5}\left(-\frac{5}{3}\right) = -1$

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

10) 5x – 3y = -2
3x – 5y = -8

Neither

$\frac{5}{3}\left(\frac{3}{5}\right) = 1$

$5x - 3y = -2$

$5x - 3y - 5x = -5x - 2$

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

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

Slope is $\frac{5}{3}$

$3x - 5y = -8$

$3x - 5y - 3x = -3x - 8$

$\frac{-5y}{-5} = \frac{-3x}{-5} - \frac{8}{-5}$

$y = \frac{3}{5}x + \frac{8}{5}$

Slope is $\frac{3}{5}$

PLEASE WORK ADDITIONAL PROBLEMS PRIOR TO CLASS. pages 261-266

CHAPTER MODULE PREPARATION FORM-Chapter 4.5

This assignment is due back at the beginning of the next class. I will collect it and check it off during class.

CHAPTER EXPLANATION/SUMMARY

Describe in your own words the objective(s) of chapter 4.5.

This Chapter explains how to graph linear inequalities in two variables, as well as how to graph the intersection of two linear inequalities. Also it explains how to graph the union of two linear inequalities.

VOCABULARY BUILDING

List and define in your own words some of the key words or phrases that will help you remember how to solve the chapter exercise problems. **How does the graph of a linear inequality differ from a linear equality? What is the test for shading a linear inequality graph?**

Graphing a linear inequality. #1- Draw the boundary - draw the graph of the strait line that is the boundary. Make the line solid if the inequality involves $\leq$ or $\geq$; make the line dashed if the inequality involves $<$ or $>$. #2 Choose a test point - Choose any point not on the line as a test point. #3 - Shade the appropriate region Shade the region that includes the test point if it Satisfies the original inequality; otherwise, shade the region on the other side of the boundary line. A pair of inequalities joined with the word and is interpreted as the intersection of the Solution Sets of the inequalities. The graph of the intersection of two or more inequalities is the region of the plane where all points Satisfy all of the inequalities at the Same time. When two inequaliti are joined by the word or, you must find the union of the graphs of the inequalities. The graph

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of the union of two inequalities includes all of the points that satisfy either inequality.

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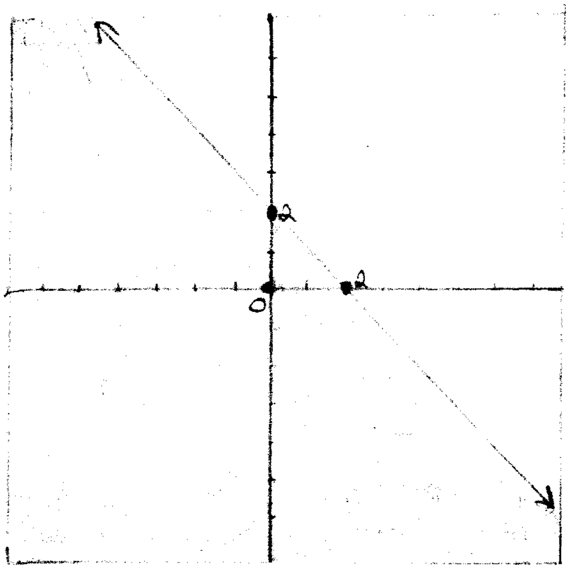
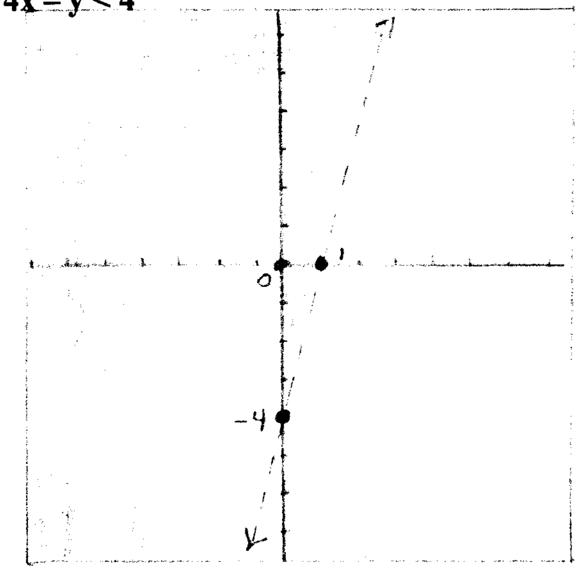
WORK OUT THE FOLLOWING PROBLEMS IN ORDER TO PREPARE YOURSELF FOR THE CLASS Show all your steps if it takes several steps to complete the problem.

Graph each linear inequality

1) $x + y \leq 2$ (2,0) (0,2) TEST 0,0



2) $4x - y < 4$ (1,0) (0,-4) TEST (0,0)

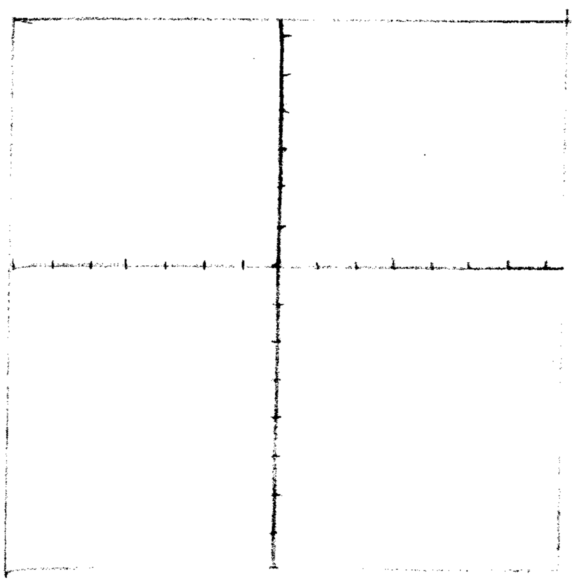


$4x-y<4$ $4(0)-0<4$

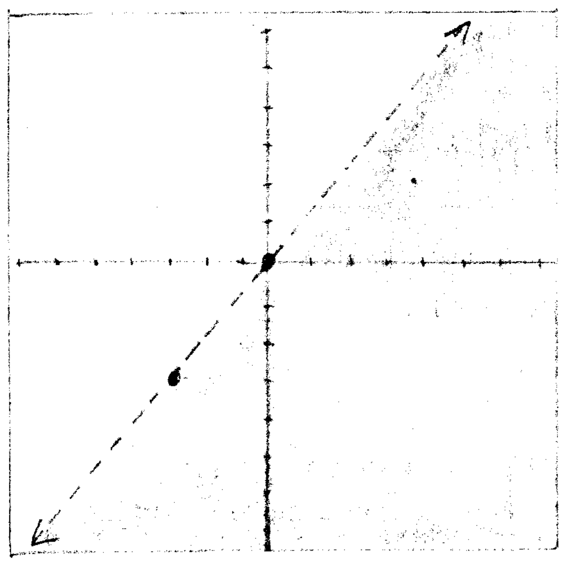
$0<4$

14

3) $x + 2y > 0$



4) $y < x$



(0,0) (-3,-3)

TEST (4,2)

$y<x$

$2<4$

PLEASE WORK ADDITIONAL PROBLEMS PRIOR TO CLASS. pages 285-288

CHAPTER MODULE PREPARATION FORM-Chapter 4.6

This assignment is due back at the beginning of the next class. I will collect it and check it off during class.

CHAPTER EXPLANATION/SUMMARY

Describe in your own words the objective(s) of chapter 4.6.

This chapter explains what the dependent variable and the independent variable are. Also how to define relation and function. It shows how to find the domain and range. Also explains how to Identify functions and linear functions. It also shows how to use function notation.

VOCABULARY BUILDING

List and define in your own words some of the key words or phrases that will help you remember how to solve the chapter exercise problems. **"relation", "function", "domain", "range", "function notation", "linear function"**

Relation - A relation is a set of ordered pairs. Function - a function is a relation in which, for each value of the first component of the ordered pairs, there is exactly one value of the second component. Domain - In a relation, the set of all values of the independent variable (x) is the domain - Range - the set of all values of the dependent variable (y) is the range. Agreement on Domain - The domain of a relation is assumed to be all real numbers that produce real numbers when substituted for the independent variable. Vertical line test - If every vertical line intersects the graph of a relation in no more than one point, then the relation represents a function. Variations of the Definition of Function - #1 A function is a relation in which, for each value of the first component of the ordered pairs, there is exactly one value of the

CONCEPTS OR EXAMPLES THAT STILL NEED CLARIFICATION

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Second Component. #2 - A function is a set of ordered pairs in which no first component is repeated. #3 - A function is a role or correspondence that assigns exactly one range value to each domain value. Finding an expression for f(x). Step 1 - Solve the equation for y. Step 2 - Replace y with f(x). Linear function - A function that can be defined by $f(x) = mx + b$ for real numbers m and b is a linear function.

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WORK OUT THE FOLLOWING PROBLEMS IN ORDER TO PREPARE YOURSELF FOR THE CLASS Show all your steps if it takes several steps to complete the problem.

Let f(x) = -3x + 4 and $g(x) = -x^2 + 4x + 1$. **Find the following**

1) f(0)

$F(0) = -3(0)+4 = 0+4 = 4$

2) g(-2)

$g(-2) = -(-2)^2 + 4(-2) + 1$

$= -4 - 8 + 1 = -11$

3) f(p)

$f(p) = -3p + 4$

4) f(x + 2)

$f(x+2) = -3(x+2)+4$

$= -3x - 6 + 4 = -3x - 2$

5) g(p/3)

$g(\frac{p}{3}) = -(\frac{p}{3})^2 + 4(\frac{p}{3}) + 1 = -\frac{p^2}{9} + \frac{4p}{3} + 1$

Solve each equation for y , replace y with f(x) and then find f(3)

6) x + 3y = 12

$\frac{3y}{3} = \frac{12-x}{3}$

$y = \frac{12-x}{3}$

$f(x) = \frac{12-x}{3}$

$f(3) = \frac{12-3}{3}$

$= \frac{9}{3} = 3$

7) $y + 2x^2 = 3$

$y = 3 - 2x^2$

$f(x) = 3 - 2x^2$

$f(3) = 3 - 2(3)^2$

$= 3 - 2(9) = 3 - 18$

$= -15$

8) 4x – 3y =8

$-3y = 8 - 4x$

$y = \frac{8-4x}{-3}$

$f(x) = \frac{8-4x}{-3}$

$f(3) = \frac{8-4(3)}{-3}$

$= \frac{8-12}{-3} = \frac{-4}{-3}$

$= \frac{4}{3}$

9) work problem 56 on page 302

PLEASE WORK ADDITIONAL PROBLEMS PRIOR TO CLASS. pages 299-302