2.3.D1 – LINEAR INEQUALITIES
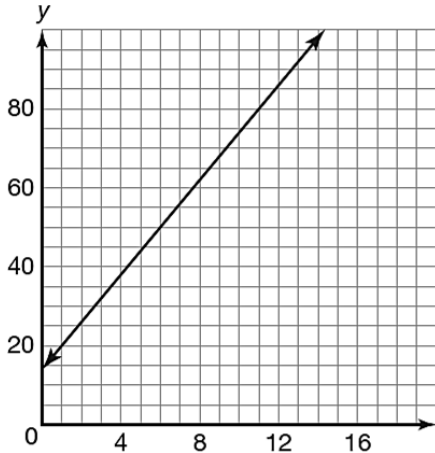
Name: _____

Past due on: _____ Period: _____

Problems 1 & 2: *Refer to the 2.2 example "Comparing Tables, Equations, and Graphs to Model and Solve Linear Situations" in the Chapter 2 Summary.*

Sketch the line for the dependent value to estimate each intersection point.

1. $f(x) = 6x + 15$ when $f(x) = 75$

Substitute and solve for x to determine the <u>exact</u> value of each intersection point.

2. $f(x) = 12x + 90$ when $f(x) = 420$

Identify the expression representing the input value, the output value, the y-intercept, and the rate of change for the function. *Refer to the 2.2 example "Identifying & Describing the Parts of a Linear Function" in the Chapter 2 Summary.*

3. A submarine is diving from the surface of the water at a rate of 17 feet per minute. The function $f(t) = -17t$ represents the depth of the submarine as it dives.

Input value: _____   *Output value:* _____

y-intercept: _____   *Rate of change:* _____

Complete the table to represent each problem situation. Identify the y-intercept and its contextual meaning. *Refer to the 2.2 example "Comparing Tables, Equations, and Graphs to Model and Solve Linear Situations" in the Chapter 2 Summary.*

4. A bathtub contains 10 gallons of water. The faucet is turned on and fills the tub at a rate of 5.25 gallons per minute.

   Identify the y-intercept. What is its contextual meaning?

	INDEPENDENT QUANTITY	DEPENDENT QUANTITY
QUANTITY		
UNITS		
	0	
	1	
	3	
		36.25
		46.75
EXPRESSION		

Problems 5 – 11: Carlos works at an electronics store selling computer equipment. He can earn a bonus if he sells $10,000 worth of computer equipment this month. So far this month, he has sold $4000 worth of computer equipment. He hopes to sell additional laptop computers for $800 each to reach his goal. The function $f(x) = 800x + 4000$ represents Carlos's total sales as a function of the number of laptop computers he sells.

5. Identify the expression representing the input value, the output value, the y-intercept, and the rate of change for the function.

   Input value: _____   *Output value:* _____

   y-intercept: _____   *Rate of change:* _____

Use the graph to write an equation or inequality to determine the number of laptop computers Carlos would need to sell to earn each amount. *Refer to the 2.3 examples "Writing & Solving Inequalities" and "Representing Inequalities on a Coordinate Plane" in the Chapter 2 Summary.*
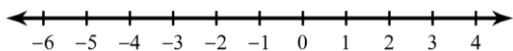
6. At least $10,000

7. Less than $7000

8. Less than $6000

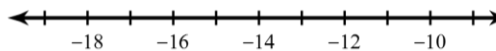9. At least $9000

10. More than $12,000

11. Exactly $8000
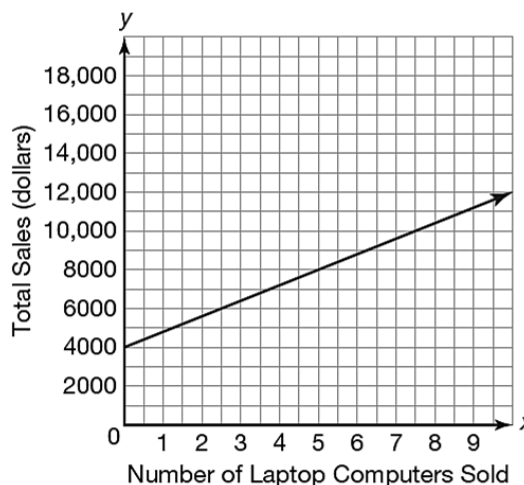
APK: SOLVING INEQUALITIES
Solve each inequality and graph the solution set. *Refer to the 2.3 example "Writing & Solving Inequalities" in the Chapter 2 Summary.*
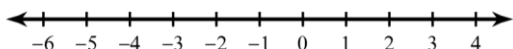
12. $4n + 6 > -6$

13. $6 + 6a \geq -90$

14. $8(6 + n) > 24$

15. $8 + 10x \leq -112$