Name: _____

2.1.D3 – LINEAR SITUATIONS

Past due on: _____ Period: _____

Use each scenario to complete the table of values and calculate the unit rate of change. *Refer to the 2.1 examples "Identifying Dependent & Independent Quantities and Writing an Expression" and "Determining the Unit Rate of Change" in the Chapter 2 Summary.*

1. Noah is stuffing envelopes with invitations to the school's Harvest Festival. He stuffs 4 envelopes each minute.

   UNIT RATE OF CHANGE:

	INDEPENDENT QUANTITY	DEPENDENT QUANTITY
QUANTITY		
UNITS		
	5	
	10	
	15	
	20	
	25	
EXPRESSION		

2. Tyrone plays on the varsity basketball team. He averages 12 points per game.

   UNIT RATE OF CHANGE:

	INDEPENDENT QUANTITY	DEPENDENT QUANTITY
QUANTITY		
UNITS		
	1	
	3	
	5	
	7	
	9	
EXPRESSION		

Identify the expression representing the input value, the output value, and the rate of change for each function. *Refer to "Problem 2.1: Analyzing Equations & Graphs" in your text.*

3. Olivia is riding her bike to her friend's house at a rate of 6 miles per hour. The function $D(t) = 6t$ represents the distance Olivia rides as a function of time.

   Input value: _____ *Output value:* _____ *Rate of change:* _____

4. Frankie mows lawns in his neighborhood to earn money. He earns \$16 for each lawn. The function $A(m) = 16m$ represents the total amount of money earned as a function of the number of lawns mowed.

   Input value: _____ *Output value:* _____ *Rate of change:* _____

Use the graph to determine the input value for each given output value. The function $D(t) = 40t$ represents the total distance traveled in miles as a function of time in hours. *Refer to the 2.1 examples "Determining the Solution to a Linear Equation on a Graph Using an Intersection Point" in the Chapter 2 Summary.*

5. $D(t) = 120$

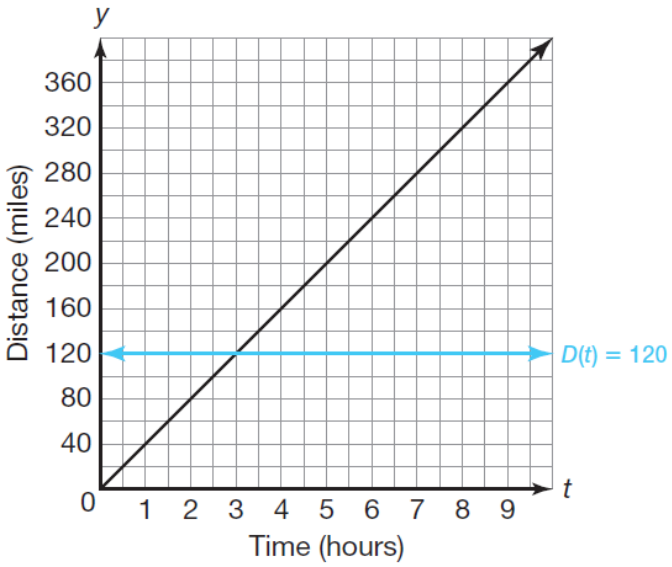
6. $D(t) = 320$

7. $D(t) = 240$

8. $D(t) = 160$

9. $D(t) = 80$

10. $D(t) = 400$



A tree grows at a rate of 3.5 feet per year.

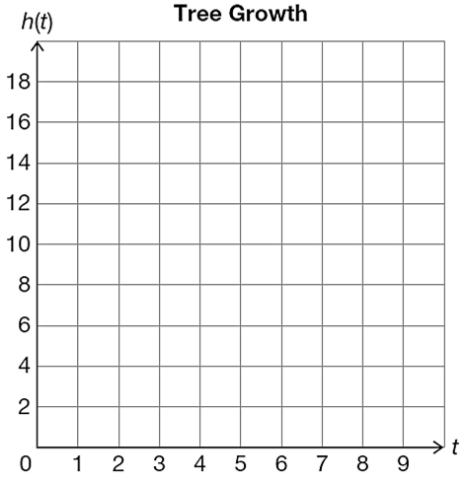
11. Identify the independent and dependent quantities and their unit of measure in this problem situation.

12. Write an equation that represents the problem situation.

13. Suppose t represents the time, in years, and $h(t)$ represents the height of the tree in terms of feet over a period of time. Complete a tables of values to describe this situation.

t	$h(t)$
2	
4	
6	
8	

14. Sketch the graph of the problem situation and label the axes.



15. Is your graph continuous or discrete?

16. What function family is represented in this situation?