

2.1.D2 - LINEAR SITUATIONS

Past due on: _____ Period: _____

Identify the independent and dependent quantities (including units) in each problem situation. Assign a variable to each quantity. Then write a function to represent the problem situation. *Refer to the 2.1 example "Identifying Dependent & Independent Quantities and Writing an Expression" in the Chapter 2 Summary.*

1. Sophia is walking to the mall at a rate of 3 miles per hour.

Independent quantity: _____ Variable: _____

Dependent quantity: _____ Variable: _____

Function: _____

2. The football booster club sells hot chocolate during the varsity football games. Each cup of hot chocolate costs \$2.

Independent quantity: _____ Variable: _____

Dependent quantity: _____ Variable: _____

Function: _____

Solve each function for the given input value. The function $A(t) = 7t$ represents the total amount of money in dollars Carmen earns babysitting as a function of time in hours. *Refer to the 2.1 example "Determining the Solution to a Linear Equation Using Function Notation" in the Chapter 2 Summary.*

3. $A(5)$

4. $A(3.5)$

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.*

5. Jada is walking to school at a rate of 2 miles per hour.

UNIT RATE OF CHANGE:

QUANTITY

UNITS

EXPRESSION

INDEPENDENT QUANTITY	DEPENDENT QUANTITY
0.25	
0.5	
1	
1.25	
1.5	

6. The volleyball boosters sell bags of popcorn during the varsity matches to raise money for new uniforms. Each bag of popcorn costs \$3.

UNIT RATE OF CHANGE:

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

7. Belinda is making greeting cards. She makes 4 cards per hour. The function $C(t) = 4t$ represents the total number of cards Belinda makes as a function of time.

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

8. Santiago is driving to visit a college campus. He is traveling 65 miles per hour. The function $D(t) = 65t$ represents the total distance he travels as a function of time.

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

First use the distributive property and/or collect like terms on the left side of the equation. Then use inverse operations to solve the equation. Show all work.

9. $55 - 10m = 2 - 7(3m + 5)$

10. $-51 - 4x = 4(x - 3) + 9$