

Math 1201 Unit 5 SAMPLE Test

Part A: Multiple Choice. Write the correct letter in the space provided to the right. (14 Marks)

1. A relation associates five foods to the food groups to which they belong:
{ (orange, fruit), (cheese, dairy) (broccoli, vegetable) (milk, dairy) (kiwi, fruit) }
- Which statement is true? 1. _____

- A). Vegetable is an element in the domain.
- B). Orange is an element in the domain.
- C). This relation is not a function.
- D). Kiwi is an element in the range.

2. The equation $M = 4.4n$, relates the number of quarters, n , to its mass, M , in grams. What is the independent variable? 2. _____

- A). The mass of the quarters.
- B). The value of the quarters.
- C). The number of quarters.
- D). Each quarter weighs 4.4 grams.

3. The height of a plane is a function of the time since take off. Identify the dependent variable? 3. _____

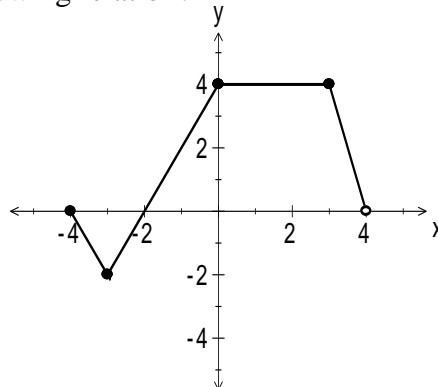
- A). height
- B). speed
- C). time
- D). acceleration

4. Which set of ordered pairs represents a function? 4. _____

- A). { (1,1) (1,-1) (4,2) (4,-2) (9,3) }
- B). { (3,4) (3,5) (3,6) (3,7) (3,8) }
- C). { (2,4) (3,4) (4,4,) (5,4) (6,4) }
- D). { (1,2) (2,3) (3,4) (4,5) (4,6) }

5. What is the domain of the following relation? 5. _____

- A). $(-4, 4)$
- B). $[-4, 4)$
- C). $(-4, 4]$
- D). $[-4, 4]$



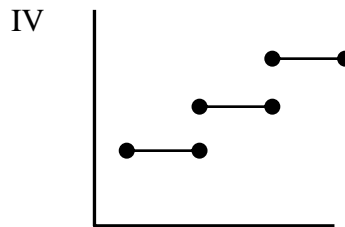
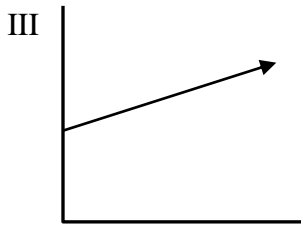
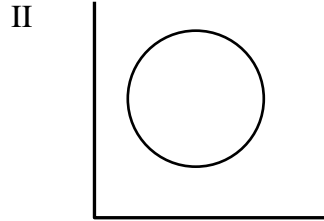
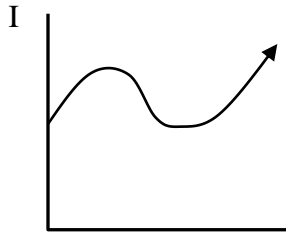
6. The cost, C , in dollars, of renting a hall for the prom is given by the formula $C(n) = 500 + 4n$, where n is the number of students attending the prom. Calculate the cost of renting the hall if 70 students attend. 6. _____

- A). \$108 B). \$500 C). \$780 D) \$970

7. Which of the following is not linear? 7. _____

- A). The height of a football thrown over time.
 B). The total weight of a jar of pennies as more pennies are added to the jar.
 C). The distance travelled by a car moving at a constant speed over time.
 D). A truck drivers salary of \$2500 a month plus \$0.50 for every kilometer driven.

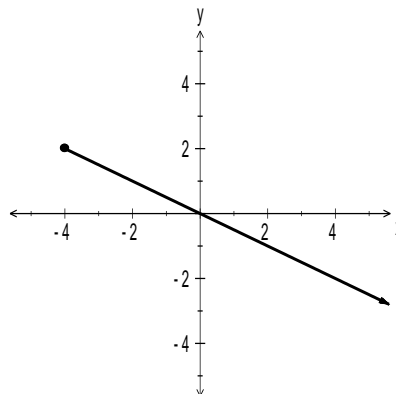
8. Which of the following relations are also functions? 8. _____



- A). III only B). I and III only C). II and IV only D). I, II, and IV only

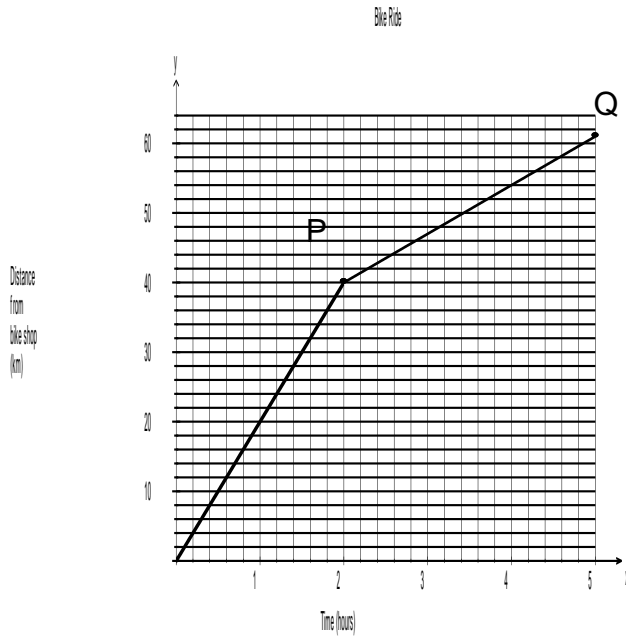
9. What is the range? 9. _____

- A). $\{ y / y \leq -4, y \in \mathbb{R} \}$
 B). $\{ y / y \leq 2, y \in \mathbb{R} \}$
 C). $\{ y / y \geq -4, y \in \mathbb{R} \}$
 D). $\{ y / y \geq 2, y \in \mathbb{R} \}$



10. What is the rate of change from P to Q?

10. _____



- A). decreased 7 km/h
- B). decreased 3 km/h
- C). increased 3 km/h
- D). increased 7 km/h

11. Which ordered pair represents $f(3) = -5$?

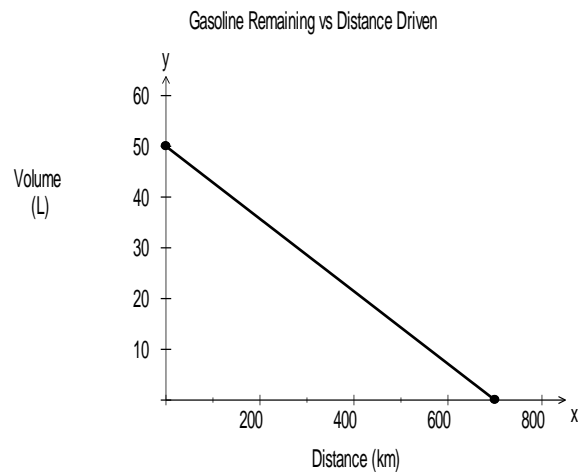
11. _____

- A). $(-5, 3)$
- B). $(-3, 5)$
- C). $(3, -5)$
- D). $(5, -3)$

12. The graph below shows the relationship between the amount of gasoline remaining in a 50 L tank and the distance driven. What does the **x-intercept** represent in this situation?

12. _____

- A). Fuel capacity of the gasoline tank.
- B). Total distance travelled during a long trip.
- C). Total distance driven until the car is out of gas.
- D). Number of kilometers driven per liter of gasoline.



13. Which table of values represents a linear relation?

13. _____

A).

x	y
-2	7
-1	4
0	1
1	-2
2	-5

B).

x	y
-2	-1
-1	-4
0	-5
1	-4
2	-1

C).

x	y
-2	6
-1	8
0	11
1	15
2	20

D).

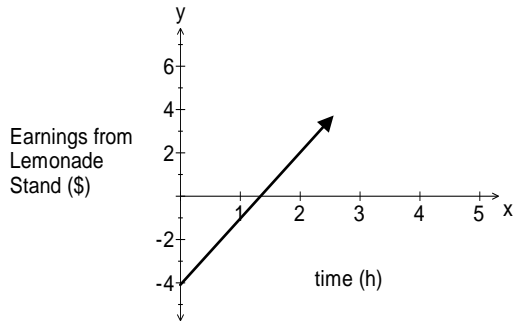
x	y
-2	1
-1	2
0	4
1	8
2	16

14. Which graph has a rate of change of \$3/h and a vertical intercept of -4?

14. _____

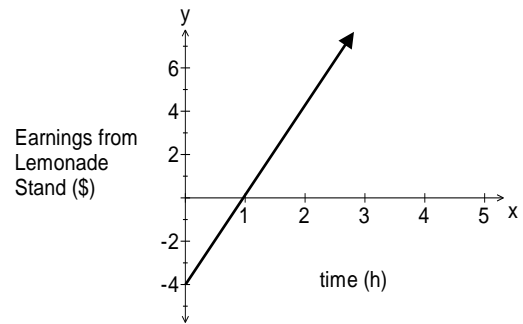
A).

Summer Lemonade Stand



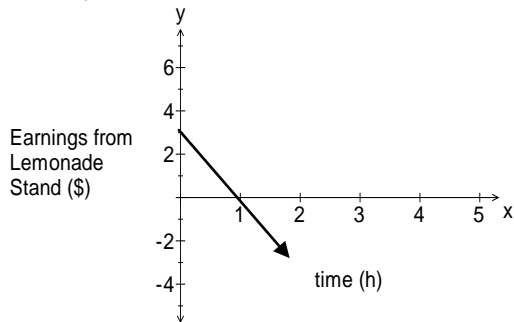
B).

Summer Lemonade Stand



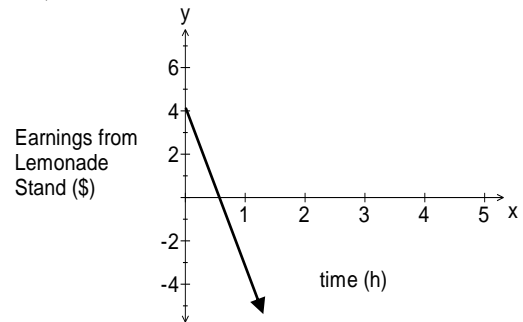
C).

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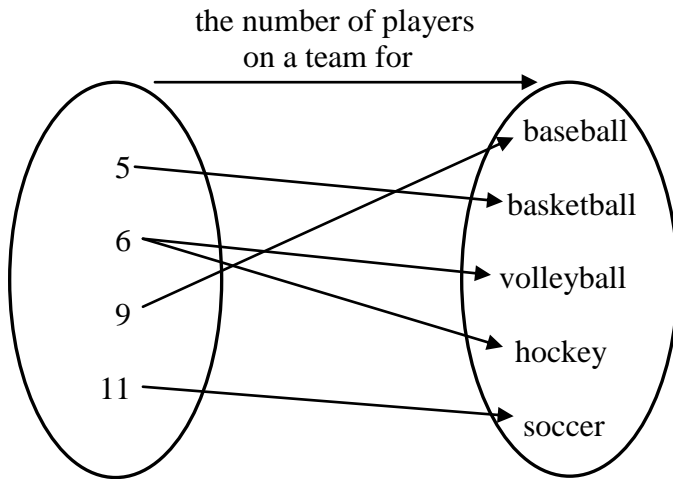
D).

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Part B. Constructed Response. Provide your answer in the space provided. Show all necessary workings to receive full marks. (26 Marks)

1. Is this relation a function? Explain why or why not. (2 Marks)



2. Frank sells memberships to a local gym. The equation $E = 50n + 150$ represents his weekly earnings, E dollars, when he sells n memberships.

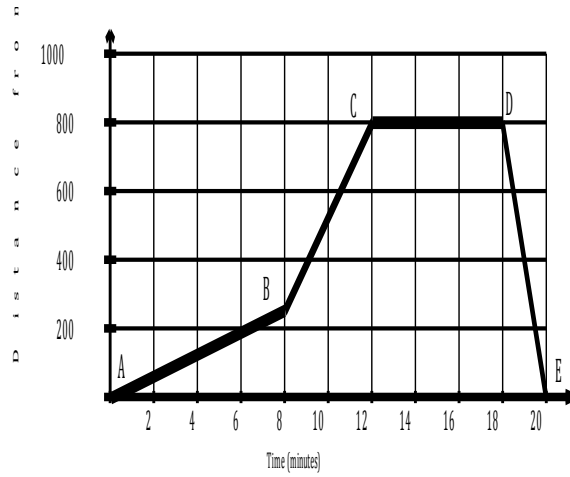
A). Write the equation in function notation. (1 Mark)

B). Find the value of n when $E = \$900$. What does the number represent? (2 Marks)

C). Is this a linear function? Explain why or why not. (2 Marks)

D). What is the rate of change? What does it represent? (2 Marks)

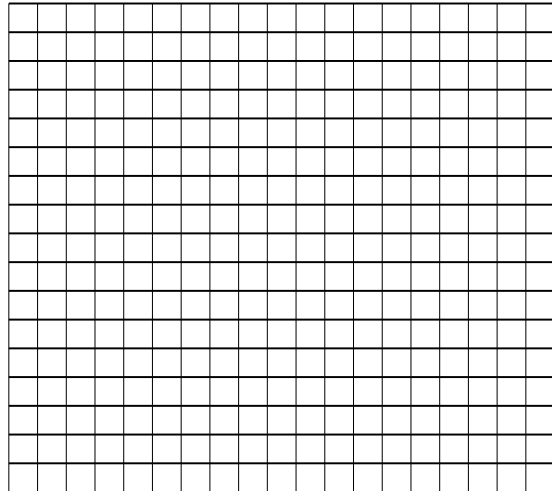
3. Write a story to match the graph below. Be sure to include the time and the distance travelled in your story. (4 Marks)



4. This table below shows the attendance for a weekly afterschool yoga class. Be sure to include all necessary labels.

- a). Graph the data. (4 Marks)

Week	Number of students
1	20
2	25
3	25
4	20
5	15
6	10



- b). Does it make sense to connect the points? Explain. (1 Mark)

- c). Is this relation a function? Explain. (1 Mark)

5. Refer to the function $f(x) = 2x - 6$.

A). Determine the x – intercept.

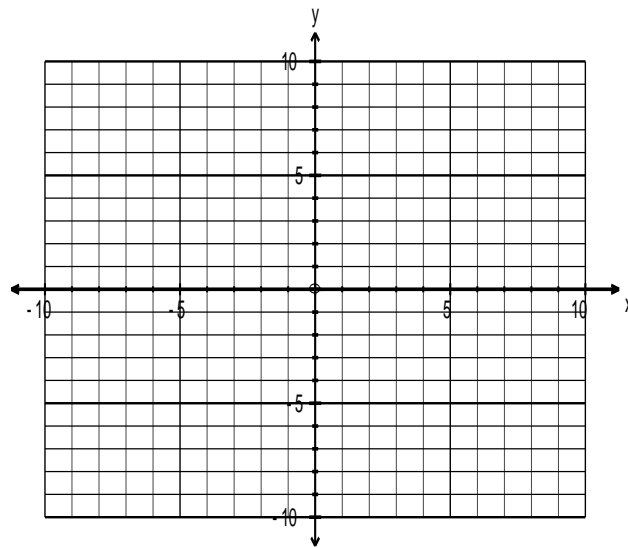
(2 Marks)

B). Determine the y – intercept.

(2 Marks)

C). Plot the intercepts and draw the function on the grid provided.

(2 Marks)



D). What is the rate of change?

(1 Mark)