

PRACTICE Midterm – Chapter 5

MULTIPLE CHOICE

___ 1. What is the Range of this Relation ?

$$\{(8, 10), (5, 7), (9, -11), (6, -8)\}$$

$$R = \{-11, -8, 7, 10\}$$

___ 2. Let $f(x) = -3x + 8$,

a) determine $f(-2) = -3(-2) + 8$

$$= 6 + 8$$

$$= 14$$

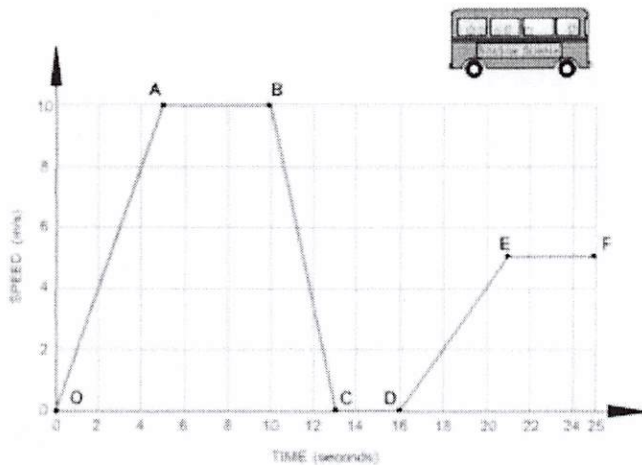
b) Determine x such that $f(x) = 6$

$$-3x + 8 = 6$$

$$-3x = -2$$

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

___ 3. a) On which portion(s) of the trip did the bus stop?



a. AB

b. CD

c. EF

d. AB, CD and EF

b) On which portion(s) of the trip did the bus drive accelerate the most?

a. OA

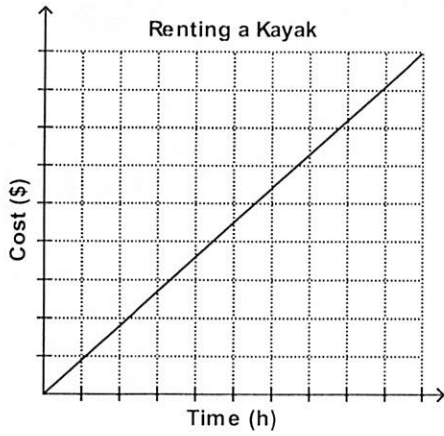
b. AB

c. BC

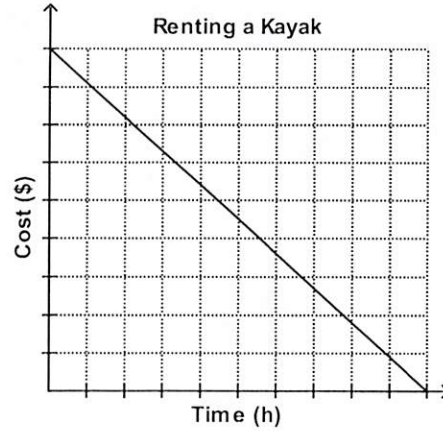
d. DE

a 4. Which graph represents the cost of kayak rentals as a function of time?

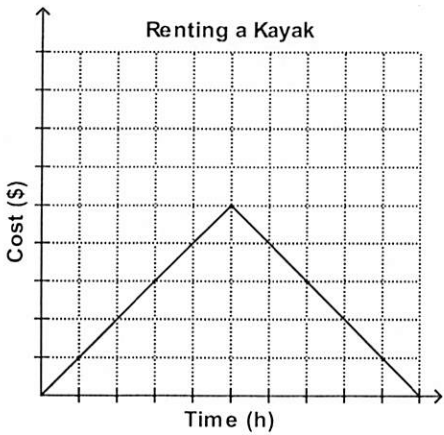
a.



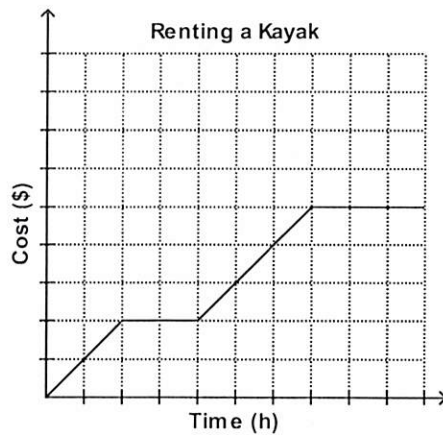
c.



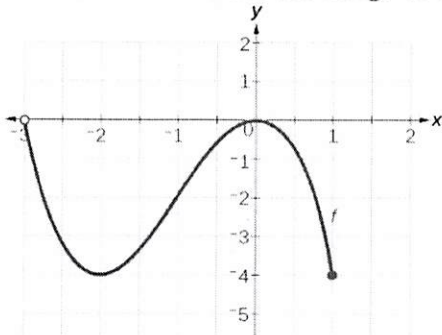
b.



d.

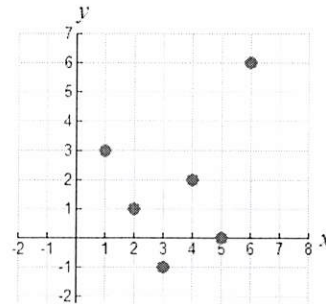


5. Determine the Domain and the Range of these graphs.



$$D = [-3, 1]$$

$$R = [-4, 0]$$

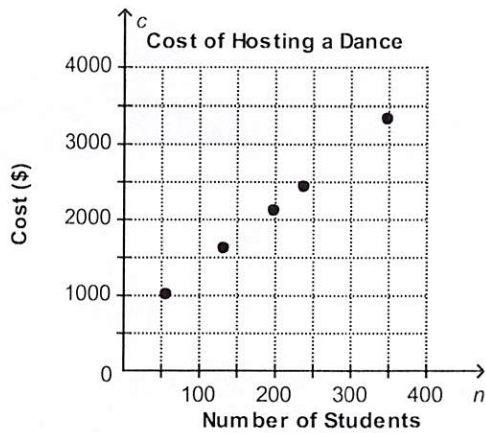


$$D = \{1, 2, 3, 4, 5, 6\}$$

$$R = \{-1, 0, 1, 2, 3, 6\}$$

6. Someone graphed some data about a school dance. Could the dots be connected? What is the restriction on the domain?

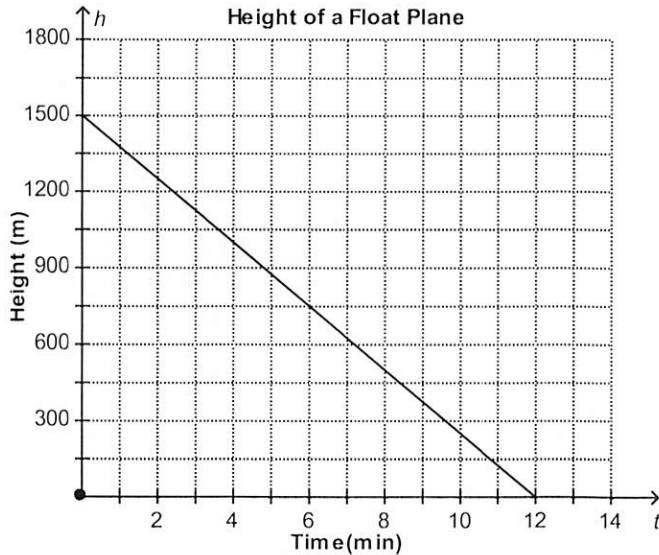
C.



The dots could be connected because there are many values in between that would make sense. Too many to distinguish the separate points.

- a. The Domain can only be positive numbers.
- b. The domain can only have 5 values between 50 and 350.
- c. The domain must be only whole numbers.
- d. The domain can only contain multiples of 50.

7. The graph represents the height of a plane during its descent. What is the rate of change?



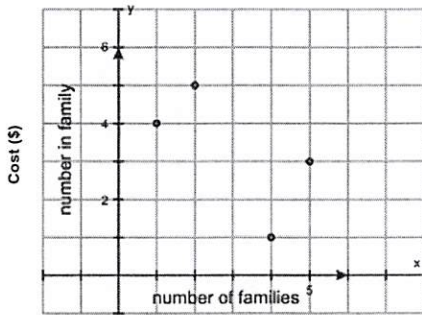
$$r = \frac{-1500}{12} = -125 \text{ m/min}$$

Short Responses

8. Why aren't the points connected?

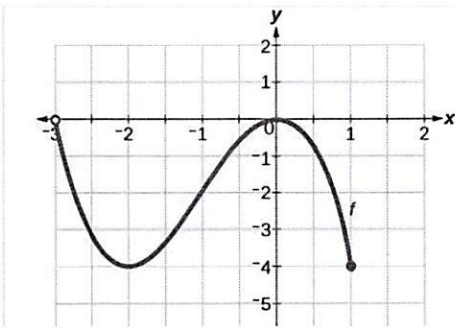
Short Responses

8. Why aren't the points connected?



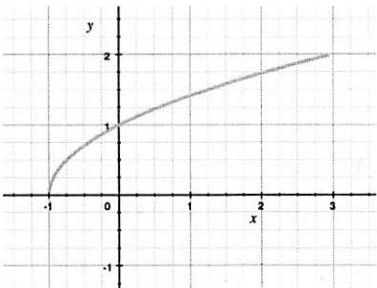
The phenomenon is discrete (not continuous)
 we can't consider 1.5 families
 or 2.5 members in a family.
 The intermediate values wouldn't make sense.

9. Determine the domain and the range.



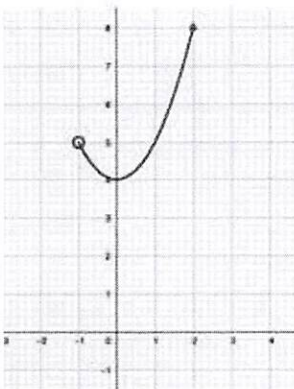
$$D = [-3, 1]$$

$$R = [-4.5, 0]$$



$$D = [-1, +\infty)$$

$$R = [0, +\infty)$$

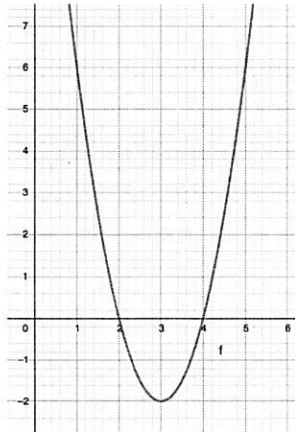


$$D = [-1, 2]$$

$$R = [4, 8]$$

Determine the following values:

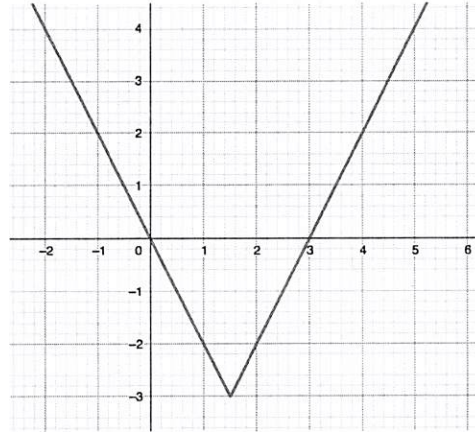
a)



$$f(1) = 6 \quad f(3) = -2$$

$$x \text{ when } f(x) = 0 \quad x = 2 \\ x = 4$$

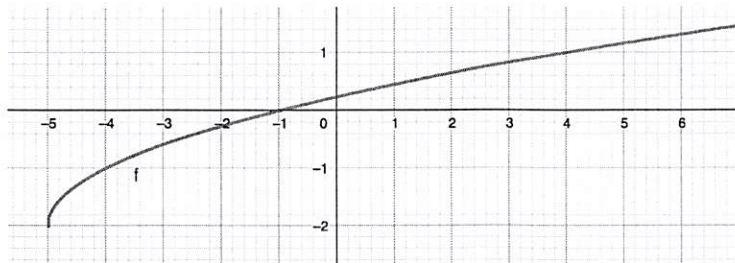
c)



$$f(2) = -2 \quad f(4) = 2$$

$$x \text{ when } f(x) = 0 \quad x = 0 \\ x = 3$$

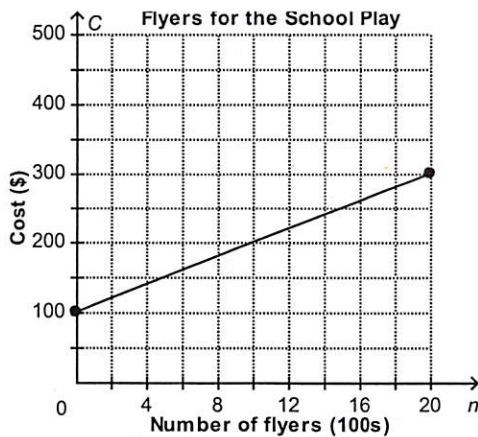
b)



$$f(-1) = 0$$

$$x \text{ when } f(x) = -1 \quad x = -4$$

10. This graph represents the cost, C in dollars, to print flyers for the school play, as a function of the number of flyers printed, n . What is the cost for 1000 flyers?



$$\text{slope} : \frac{200}{20} = 10 \text{ \$/100 flyers}$$

$$C = 10n + 100$$

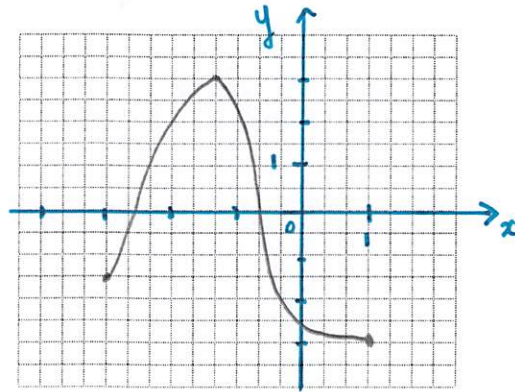
$$C = 10 \times 10 + 100$$

1000 flyers

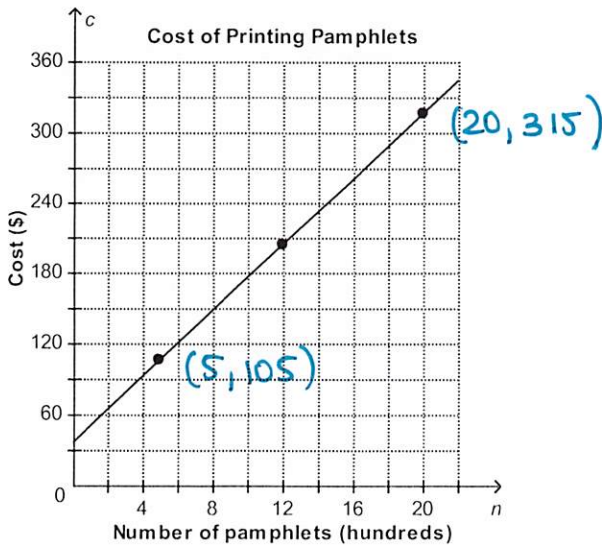
$$C = 200$$

11. Sketch the graph of a function with domain $-3 \leq x \leq 1$ and range $-3 \leq y \leq 3$.

answers will vary.



12.



a) What are the dependent and independent variables?

indep: n (number of pamphlets in hundreds)
 dep: c (cost in dollars)

b) Sohan,, who has access to the coordinates of the 3 points, calculates the rate of change as follow:

Variation of the cost: $\$315 - \$105 = \$210$

Variation of the number of pamphlets: $2000 - 500 = 1500$

Rate of change: $\frac{1500 \text{ pamphlets}}{\$210} = \$7.14 / \text{pamphlet}$

Is it correct?

No: it should be $\frac{210}{1500} = 0.14 \text{ \$/pamphlet}$

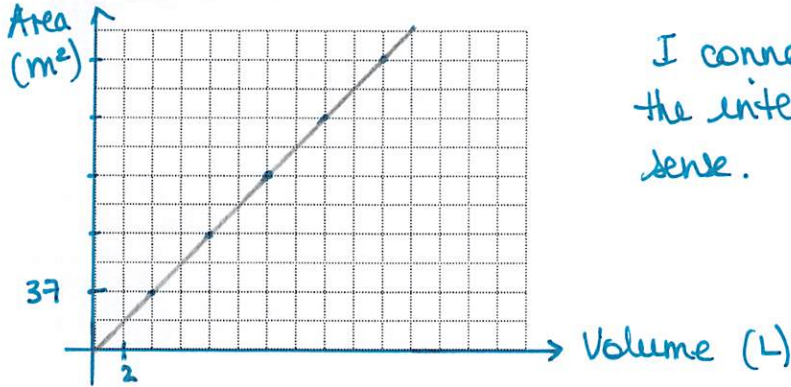
c) What does the rate of change represent?

13. A specific paint can be bought in 4L buckets for \$52. One bucket can cover 37 m^2 . There are 8 buckets in stock in the store. *the price per additional pamphlet*

a) Fill the table:

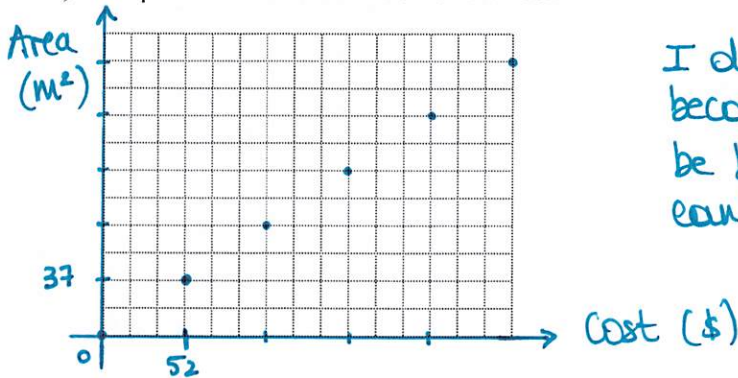
| | | | | | |
|----------------------------|---|---|--|--|--|
| Volume of paint, V (L) | 0 | 4 | | | |
| Cost, c (\$) | | | | | |
| Area covered A (m^2) | | | | | |

b) Graph the area as a function of the volume.



I connected the dots because the intermediate values make sense.

c) Graph the area as a function of the cost.



I did not connect the dots because the paint can only be bought by 4L buckets, so you can't spend different amounts...

d) What are the domains and ranges for the 2 previous questions?

b) $D = [0, +\infty)$
 $R = [0, +\infty)$

c) $D = \{ \text{multiples of 52 starting at 0} \}$
 $R = \{ \text{multiples of 37 starting at 0} \}$