ALGEBRA

KEY

Chapter 5 Review

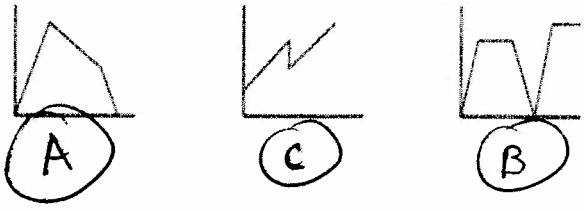
#1

Match the graph with the corresponding situation.

a) The amount of milk in Jill's bowl as she poured milk into her empty bowl, ate the cereal, then drank the milk that was left.

b) The speed of Sam's car as he started his car, increased his speed, slowed down for a stop sign, then increased again while on the interstate.

c) The height of a tree that Heidi planted, then trimmed and allowed to grow again.



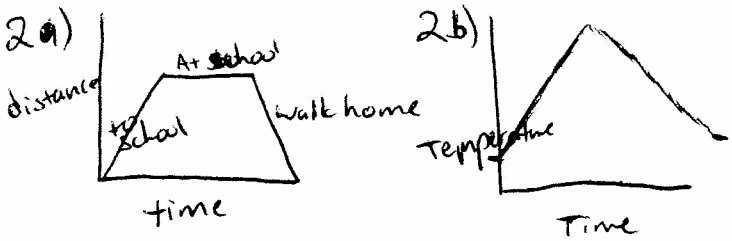
#2

Draw an example of a graph that could fit the following situations.

a) The distance away from home as you walk to school and then walk back home

b) The temperature throughout the day in April in Nebraska.

c) The checking account balance as you deposit a check and then go shopping to two stores and write a check at each store.



#3

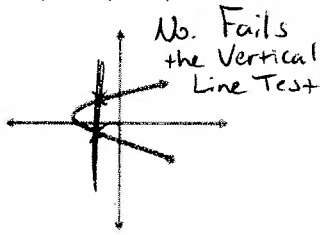
Are the following relations functions? Explain why or why not.

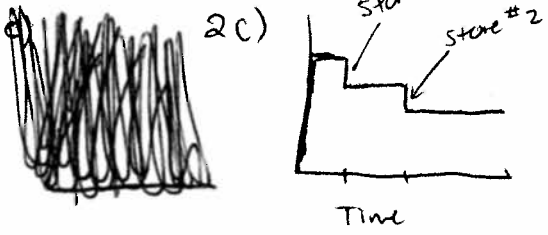
a)

x	y
1	4
2	4
3	6
4	9

Yes. Each input has only one output.

b)

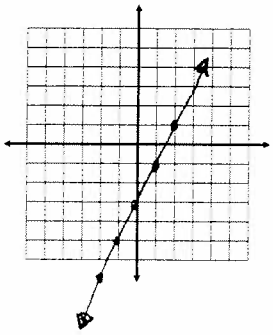




#4

Make a table of values and graph the function y = 2x – 3

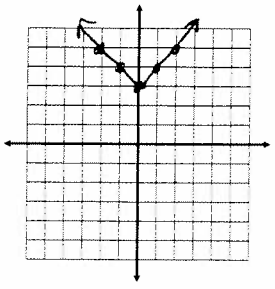
x	y
-2	4 - 3 = -7
-1	-2 - 3 = -5
0	0 - 3 = -3
1	2 - 3 = -1
2	4 - 3 = 1



#5

Make a table of values and graph the function $y = |x| + 3$

x	y
-2	2 + 3 = 5
-1	1 + 3 = 4
0	0 + 3 = 3
1	1 + 3 = 4
2	2 + 3 = 5



#6

"IN" words

a) List ***three*** words that correspond to "x"

input, domain, independent

b) List ***four*** words that correspond to "y"

output, range, dependent, f(x)

#7

Using the function $f(x) = x^2 - 1$ and the domain {-2, 0, 2, 4}, identify the range.

domain	range
-2	$(-2)^2 - 1 = 4 - 1 = 3$
0	$(0)^2 - 1 = 0 - 1 = -1$
2	$(2)^2 - 1 = 4 - 1 = 3$
4	$(4)^2 - 1 = 16 - 1 = 15$

Range is: {3, -1, 3, 15}

#8

Label the following situations as discrete graphs or continuous graphs.

a) the graph of the growth (weight) of your pet guinea pig Continuous ... decimals

b) the graph of the number of students per class discrete ... whole numbers

c) the graph of the speed of an airplane during a flight

Continuous... decimals

412.3 mph

#9

Write a rule for each function.

a)

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

$f(x) = -4x$

b)

x	y	
-1	0	+2
0	2	+2
1	4	+2
2	6	

$f(x) = 2x + 2$

#10

a) Write a function rule to determine the cost of books that costs $6.50 each. $C(b) = 6.50b$

b) How much would it cost if you bought 5 books? $6.50(5) =$ $32.50

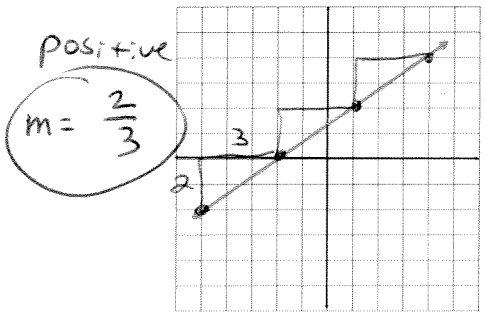
c) If you spent $26, how many books did you buy?

$\frac{26}{6.50} = \frac{6.50b}{6.50}$

$b = 4$ books

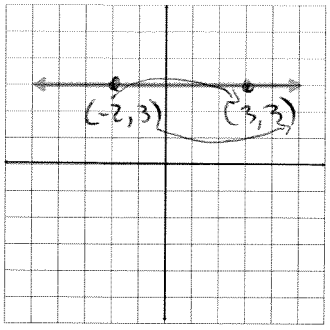
#11

Find the slope of the line.



#12

Find the slope of the line.



$\frac{3-3}{-2-3} = \frac{0}{-5} = 0$

Zero Slope

#13

Find the slope of the lines with the following ordered pairs:

$m = \frac{y_2 - y_1}{x_2 - x_1}$

a. (-5, 3) and (4, 2) $\frac{3-2}{-5-4} = \frac{1}{-9}$

b. (0, 3) and (1, -5) $m = \frac{3 - -5}{0 - 1} = \frac{3+5}{0-1} = \frac{8}{-1}$

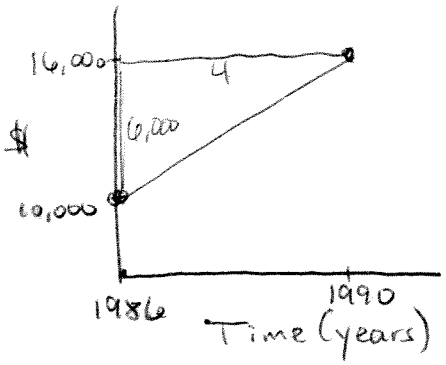
or

$m = -8$

#14

Find the rate of change

The cost of a car was $10,000 in 1986 and $16,000 in 1990.



Increase of $6,000 over 4 years

$\frac{\$6000}{4} \rightarrow \frac{\$3000}{2} \rightarrow \$1500$

Increase of $1,500 per year

#15

a) Explain the difference between a discrete and a continuous graph.

Height / Weight → decimals / fractions

Whole #'s → Cars / people

Would the graphs of the following situations be discrete or continuous?

b) the height of a tree per year Continuous

c) the amount of money earned at a car wash per car Discrete