

**Week 14: 11/16-11/20      Math I**

**Due: 11/30**

**Objectives:**

1. To review content from Chapter 2.
2. To assess knowledge of Chapter 2.
3. To introduce linear functions.
4. To find rates of change from tables.
5. To find slope.

**Monday:**

**In Class:**

**Chapter 2 Review**

**Homework:**

**Finish Chapter 2 Review**

**IN ORDER TO RECEIVE FULL CREDIT, YOU MUST TYPE IN YOUR ANSWERS ON PEARSON WEBSITE TO GET A SCORE!!!!**

**Tuesday:**

**In Class:**

**Chapter 2 Test: You are allowed one page, one sided to use as a cheat sheet.**

**Homework:**

**None**

**Wednesday:**

**Complete "Getting Read for Chapter 3" on page 165 in your text.**

**Go to text website: [www.pearsonsuccessnet.com](http://www.pearsonsuccessnet.com)**

**Click on section 3-1 and WATCH online problems 1-4 and complete "Got It's" that follow.**

**I WILL BE CHECKING THESE AND YOU WILL RECEIVE ZERO CREDIT IF NOT COMPLETE.**

**Thursday:**

**In Class:**

**Section 3-1: #1-8**

**Homework:**

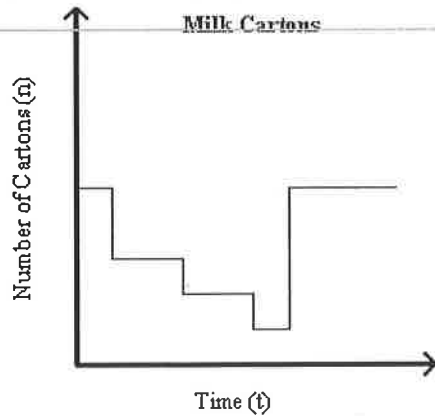
**Section 3-1: #9-11, 15-31**

**Friday:**

**Complete 3-1 Vocabulary Handout Attached**

**THERE ARE NO CENTER CLASSES NEXT WEEK, BUT YOU WILL HAVE INDEPENDENT STUDY ASSIGNMENTS TO COMPLETE MONDAY AND TUESDAY IN WEEK 15 PACKET YOU RECEIVED TODAY. IT WILL ALSO BE DUE ON 11/30 ALONG WITH THIS PACKET.**

- 1 The graph shows the number of milk cartons in the refrigerator section of a grocery store as time passes. What are the variables? Describe how the variables are related at various points in the graph.

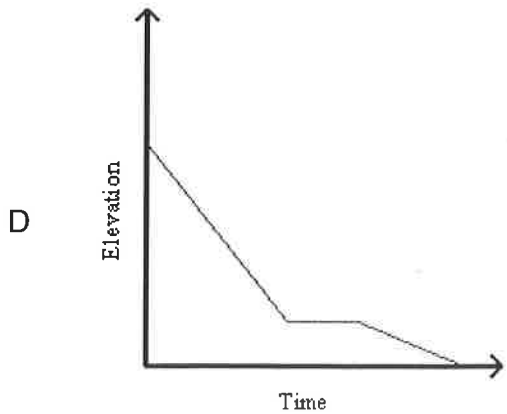
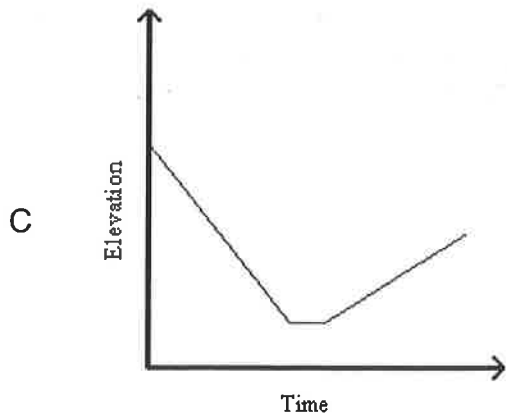
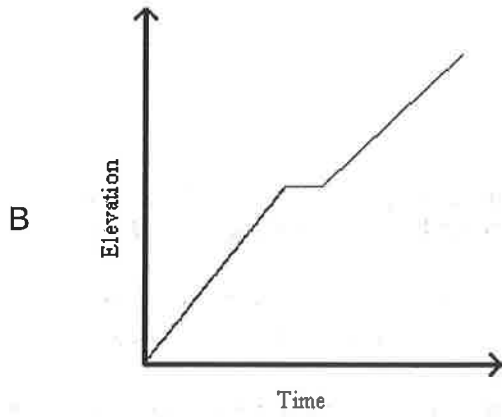
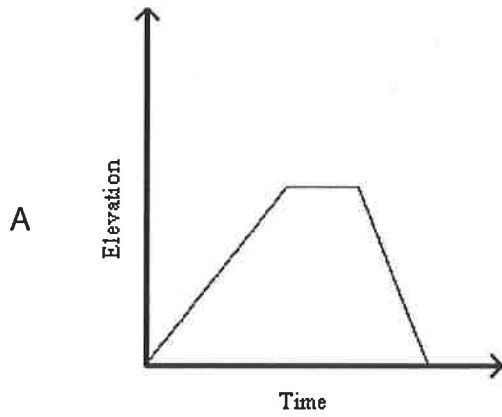


- A The variables are the number of cartons ( $n$ ) and the time ( $t$ ); each dip in the graph represents a purchase, and the final horizontal line represents the shelves being restocked.
- B The variables are the number of cartons ( $n$ ) and the time ( $t$ ); each horizontal section of the graph represents a purchase, and the final horizontal line represents the shelves being restocked.
- C The only variable is the number of cartons ( $n$ ); each dip in the graph represents a purchase, and the final horizontal line represents the shelves being restocked.
- D The only variable is the number of cartons ( $n$ ); each horizontal section of the graph represents a purchase, and the final horizontal line represents the shelves being restocked.

## Chapter 02 Test

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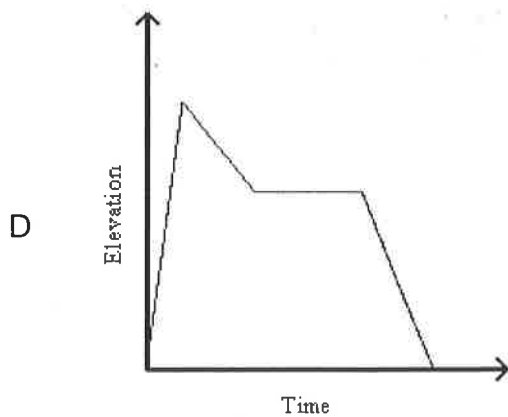
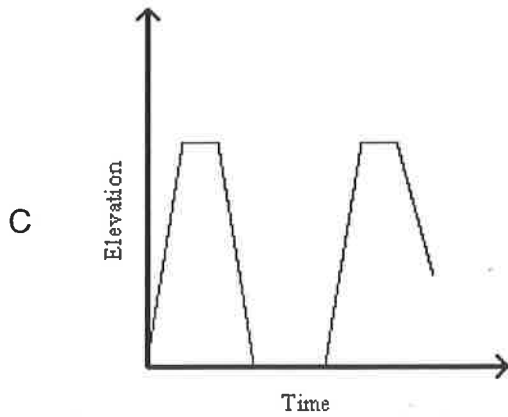
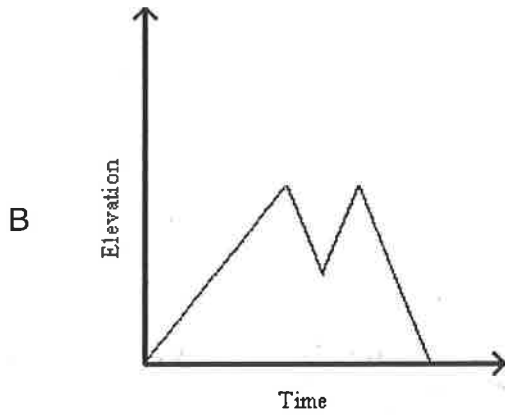
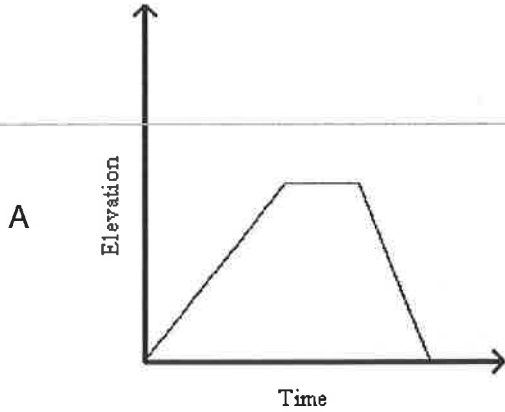
- 2 You hike up to a mountain pass and stop to appreciate the view for two hours before heading down the other side. Sketch a graph of your elevation over time.



## Chapter 02 Test

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- 3 A helicopter takes off from ground level and rises to a cruising elevation. The pilot descends to ground level, picks up a reporter, and transports her to a helipad on top of a building. Sketch a graph of the height of the helicopter over time.

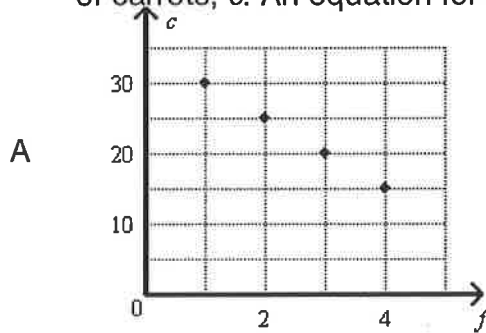


Chapter 02 Test

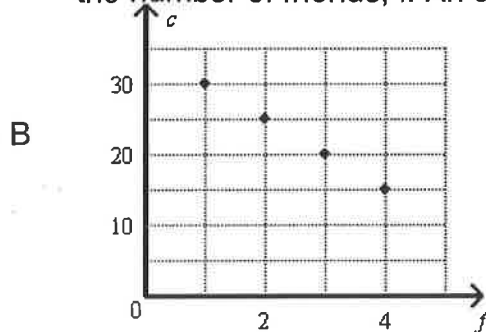
- 4 For the table, identify the independent and dependent variables. Then describe the relationship using words, an equation, and a graph.

Carrots Left				
Number of Friends	1	2	3	4
Number of Carrots	30	25	20	15

The independent variable is the number of friends and the dependent variable is the number of carrots. The number of friends,  $f$ , is equal to 35 minus the number of carrots,  $c$ . An equation for this situation is  $f = 35 - 5c$ .

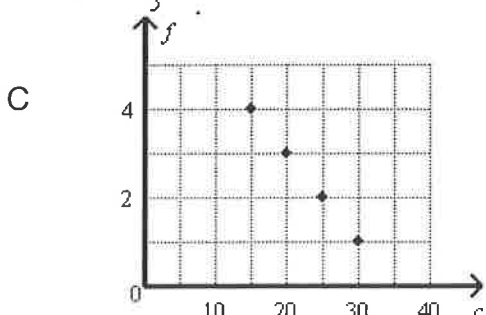


The independent variable is the number of friends and the dependent variable is the number of carrots. The number of carrots,  $c$ , is equal to 35 minus five times the number of friends,  $f$ . An equation for this situation is  $c = 35 - 5f$ .



The independent variable is the number of carrots and the dependent variable is the number of friends. The number of friends,  $f$ , is equal to one fifth of the difference of 35 and the number of carrots. An equation for this situation is

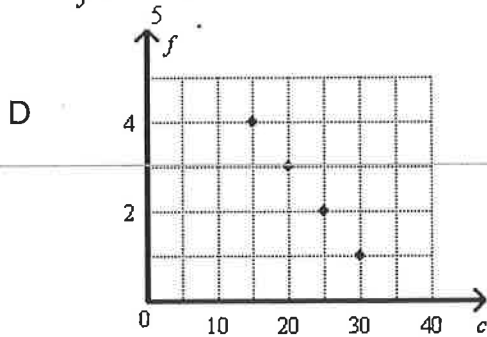
$$f = \frac{35 - c}{5}$$



Chapter 02 Test

The independent variable is the number of carrots and the dependent variable is the number of friends. The number of friends,  $f$ , is equal to one fifth of the difference of the number of carrots and 35. An equation for this situation is

$$f = \frac{c - 35}{5}$$



- 5 Tell whether the function shown by the table is *linear* or *nonlinear*. Explain!!!

$x$	$y$
1	10.5
2	17
3	23.5
4	30
5	36.5

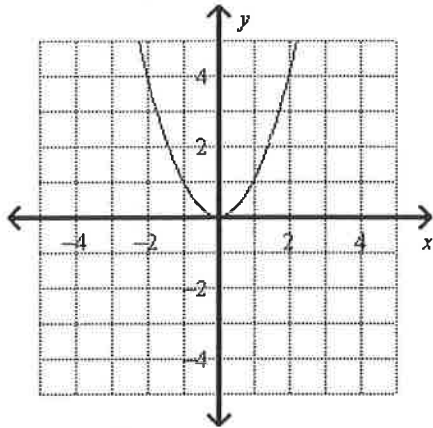
- A linear  
B nonlinear

- 6 Tell whether the function shown by the table is *linear* or *nonlinear*. Explain!!!

$x$	$y$
1	6.6
2	3.96
3	2.38
4	1.43
5	0.86

- A linear  
B nonlinear

- 7 Does the graph represent a *linear function* or a *nonlinear function*? Explain.

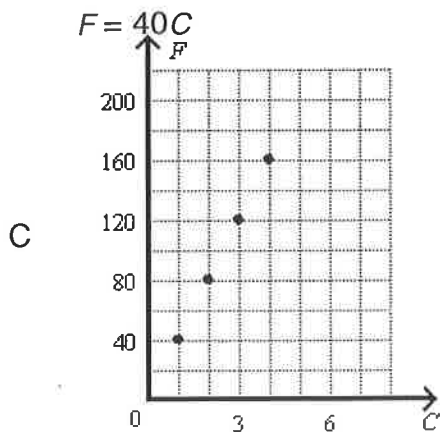
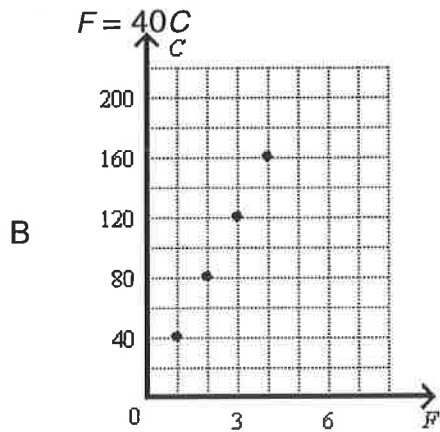
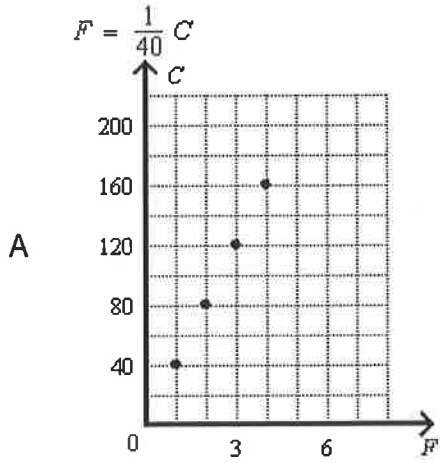


- A Linear; the graph is a straight line.
  - B Linear; the graph has values in two of the quadrants.
  - C Nonlinear; the graph is not a straight line.
  - D Nonlinear; the graph only has values in two of the quadrants.
- 8 The height of a tree increases as time passes. Your friend says that time is the dependent variable because size depends on time. Is your friend correct? Explain.
- A Yes; height depends on time, so time is dependent variable and height is the independent variable.
  - B Yes; time depends on height, so time is dependent variable and height is the independent variable.
  - C No; time depends on height, so height is the dependent variable and time is the independent variable.
  - D No; height depends on time, so height is the dependent variable and time is the independent variable.

Chapter 02 Test

- 9 What appears to be the relationship between  $F$  and  $C$  in the table below? What is the correct graph of the data?

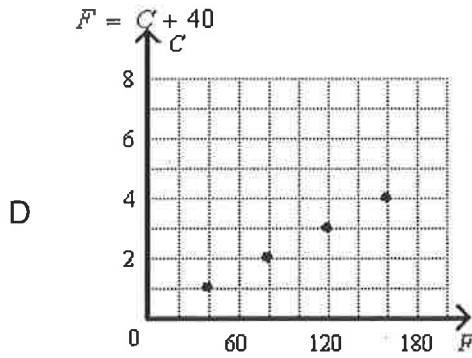
$F$	1	2	3	4
$C$	40	80	120	160





## Chapter 02 Test

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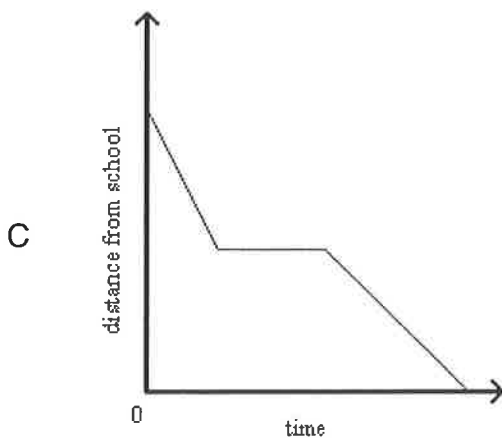
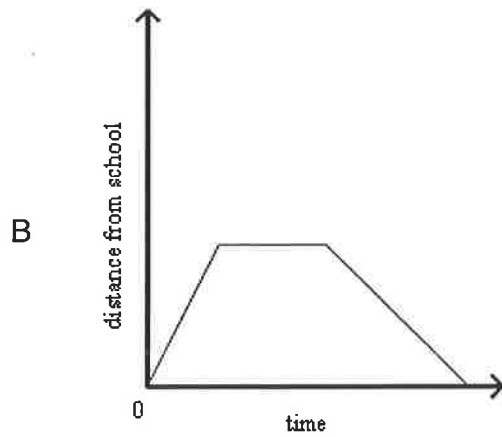
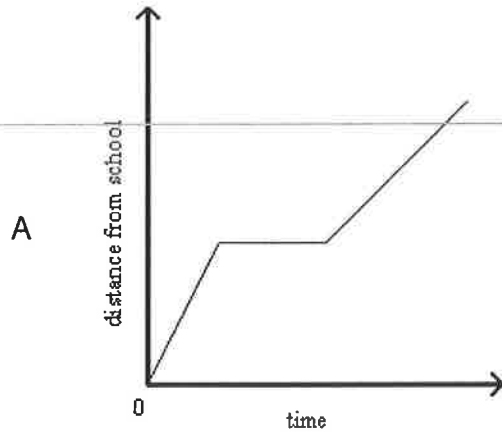


- 10 With some functions, the value of the dependent variable decreases as the value of the independent variable increases. What is a real-world example of this?
- A The resale value of a car over time.
  - B The time it takes you to travel a fixed distance as you decrease your speed.
  - C The balance of a checking account when only withdrawals are made.
  - D all of these

## Chapter 02 Test

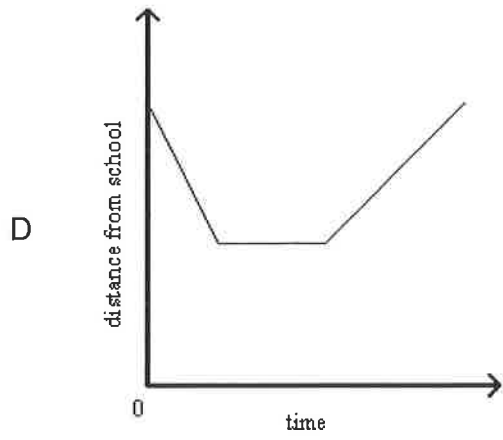
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- 11 You walk quickly to your friend's house, which is half of the way between your house and the school. You wait a few minutes for your friend to get ready. You then walk slowly with your friend the rest of the way to school. Which of the graphs matches this situation?



# Chapter 02 Test

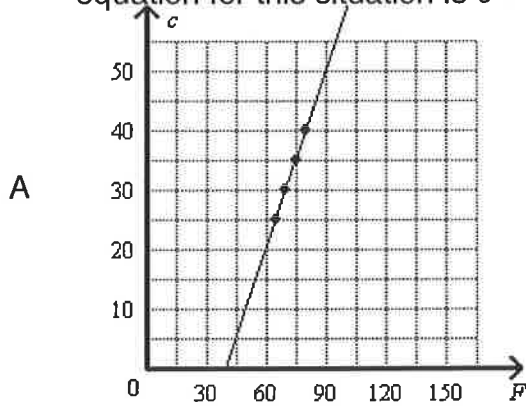
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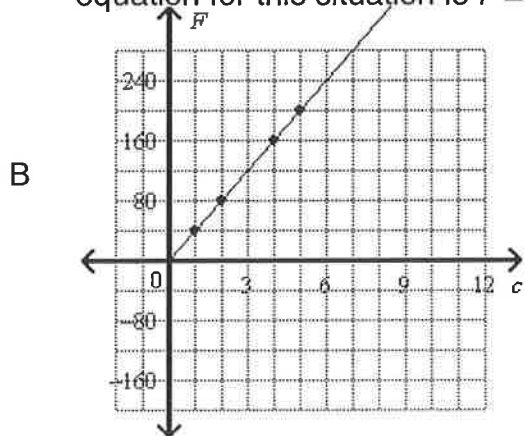
- 12 Identify the independent and dependent variables in the table below. Then describe the relationship using words, an equation, and a graph.

Number of Cricket Chirps in 14 sec				
Temperature (°F)	65	70	75	80
Number of Chirps	25	30	35	40

The independent variable is the number of chirps and the dependent variable is the temperature. The number of chirps,  $c$ , equals the temperature  $F$  minus 40. An equation for this situation is  $c = F - 40$ .

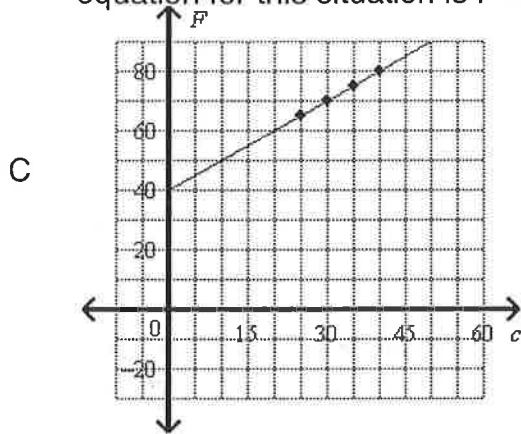


The independent variable is the number of chirps and the dependent variable is the temperature. The number of chirps,  $c$ , plus 40 equals the temperature,  $F$ . An equation for this situation is  $F = c + 40$ .

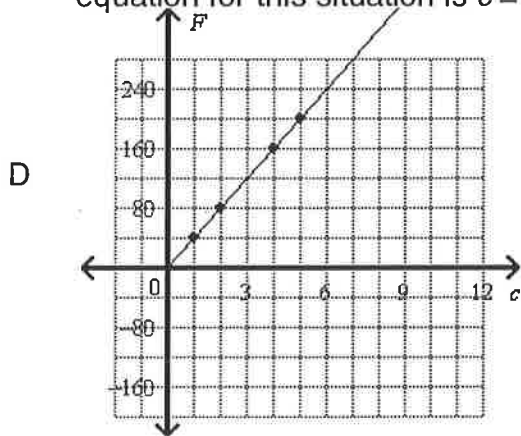


## Chapter 02 Test

The independent variable is temperature and the dependent variable is the number of chirps. The number of chirps,  $c$ , plus 40 equals the temperature,  $F$ . An equation for this situation is  $F = c + 40$ .



The independent variable is temperature and the dependent variable is the number of chirps. The number of chirps,  $c$ , equals the temperature  $F$  minus 40. An equation for this situation is  $c = F - 40$ .

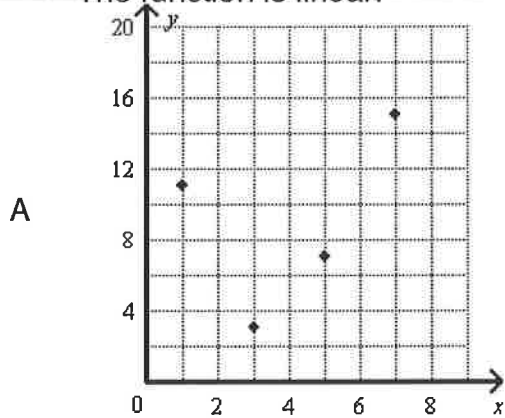


## Chapter 02 Test

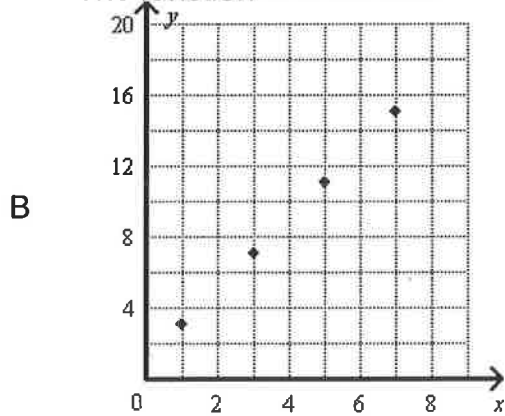
- 13 Graph the function shown by the table. Tell whether the function is *linear* or *nonlinear*.

$x$	1	3	5	7
$y$	3	7	11	15

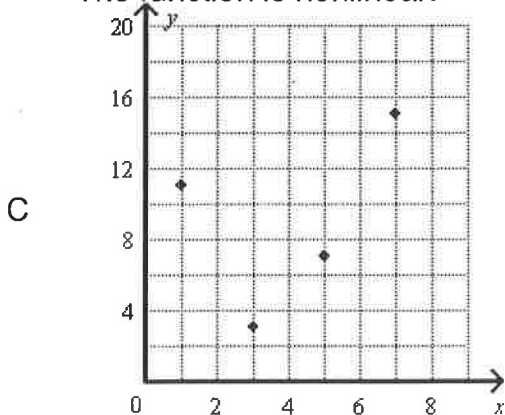
The function is linear.



The function is nonlinear.

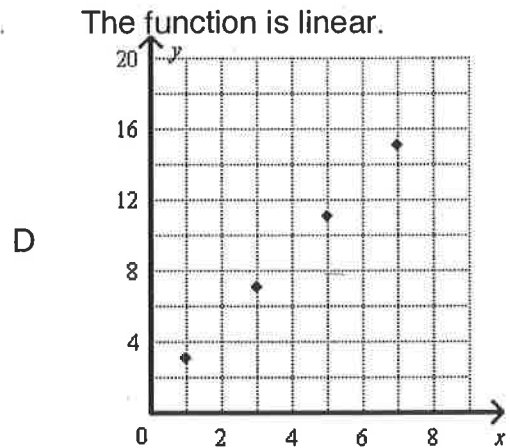


The function is nonlinear.



# Chapter 02 Test

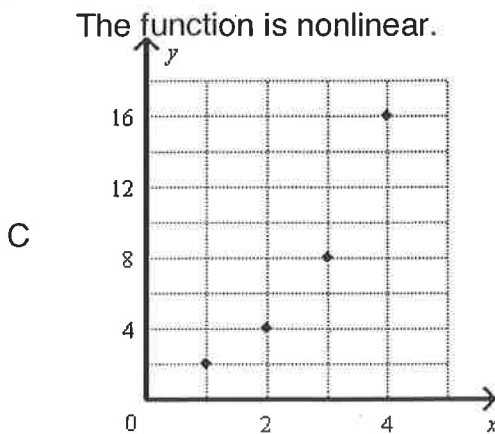
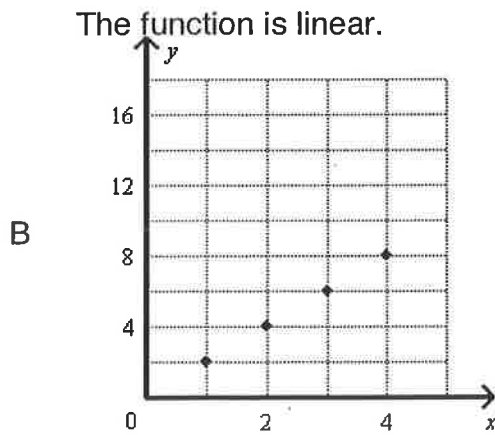
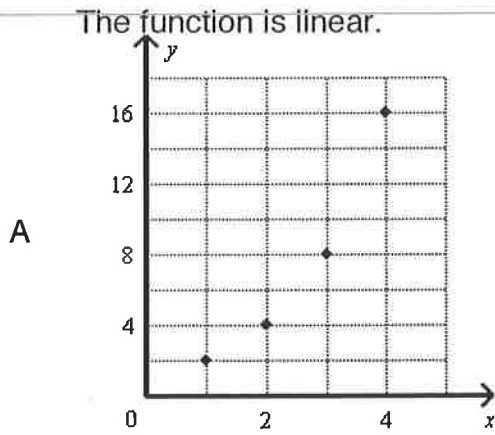
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Chapter 02 Test

14 Graph the function shown by the table. Tell whether the function is *linear* or *nonlinear*.

$x$	1	2	3	4
$y$	2	4	8	16

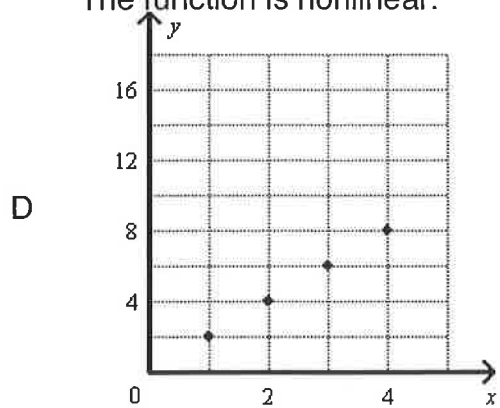




## Chapter 02 Test

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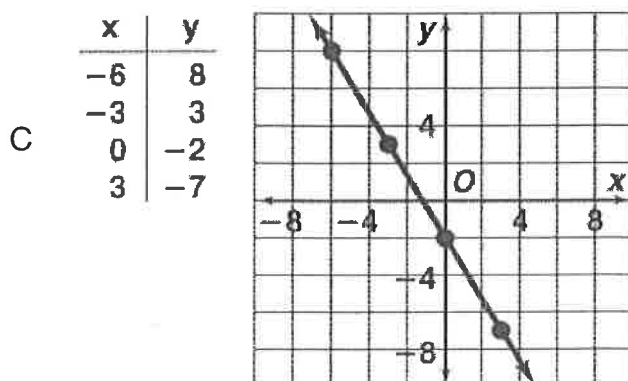
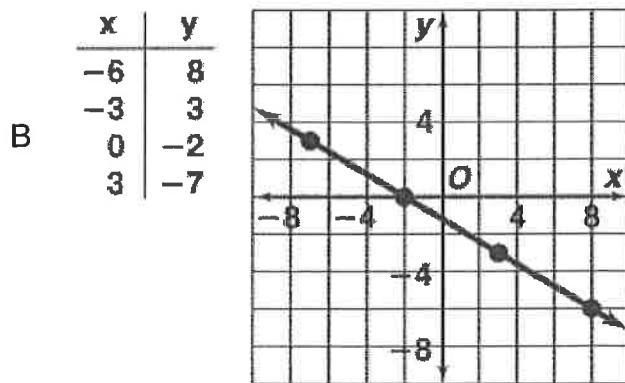
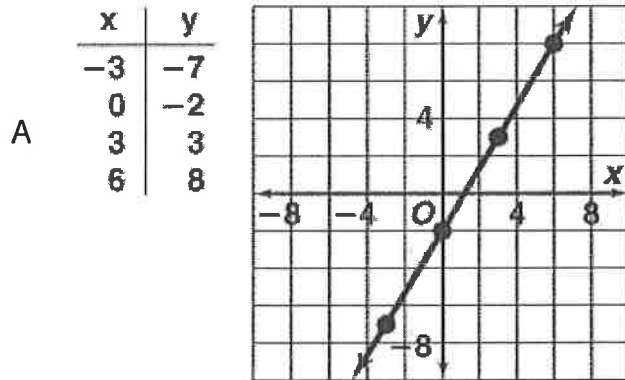
The function is nonlinear.



Chapter 02 Test

15 Make a table of values for the function rule. Then graph the function.

$$f(x) = -\frac{5}{3}x - 2$$

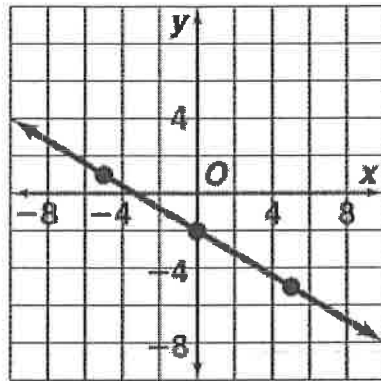


Chapter 02 Test

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D

x	y
-5	1
0	-2
5	-5

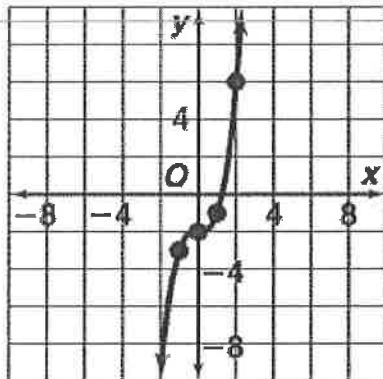


16 Make a table of values for the function rule. Then graph the function.

$$f(x) = x^3 - 2$$

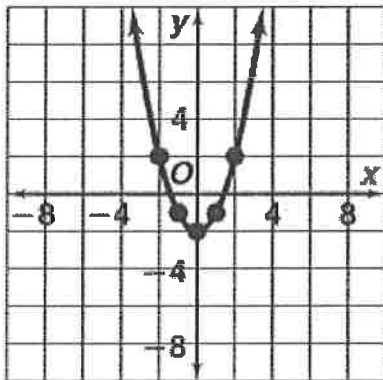
A

x	y
-1	-3
0	-2
1	-1
2	6



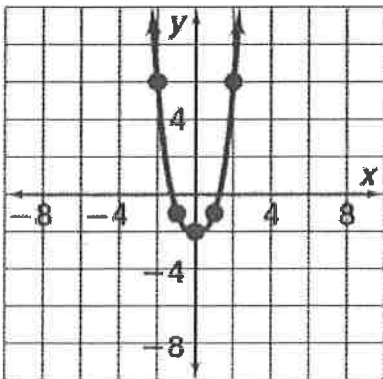
B

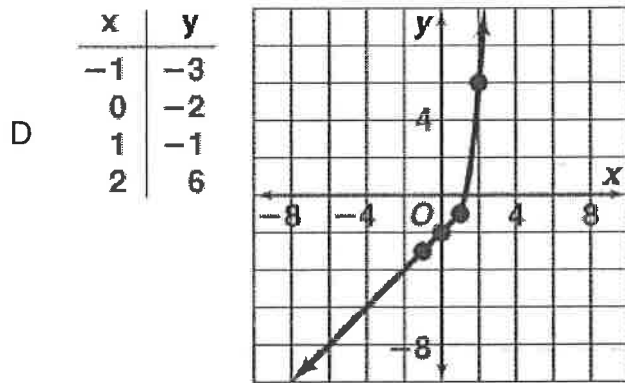
x	y
-2	2
-1	-1
0	-2
1	-1
2	2



C

x	y
-2	6
-1	-1
0	-2
1	-1
2	6





- 17 Identify the domain and range of the relation. Use a mapping diagram to determine whether the relation is a function.  
 $\{(-1, 5), (3, 4), (2, 5), (-1, -3)\}$

A

The domain of the relation is  $\{-3, 4, 5\}$  and the range is  $\{-1, 2, 3\}$ . The relation is a function.

B

The domain of the relation is  $\{-3, 4, 5\}$  and the range is  $\{-1, 2, 3\}$ . The relation is a function.

C

The domain of the relation is  $\{-1, 2, 3\}$  and the range is  $\{-3, 4, 5\}$ . The relation is a function.

D

The domain of the relation is  $\{-1, 2, 3\}$  and the range is  $\{-3, 4, 5\}$ . The relation is not a function.

## Chapter 02 Test

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- 18 Sheila is ordering pizzas for a party. Each plain pizza costs \$9.00, and each topping costs \$1.50. The delivery charge is \$3.00. Write a function rule to show the total cost of the pizzas if the pizza ordered has 2 toppings. How much will 5 pizzas cost?
- A  $c = 15p$ ; \$75.00
  - B  $c = 12 + 3p$ ; \$27.00
  - C  $c = 3 + 12p$ ; \$63.00
  - D  $c = 6 + 10.5p$ ; \$58.50
- 
- 19 Viola can work no more than 11 hours a week at her part-time job. She gets paid \$7.75 per hour. Let  $p$  stand for the amount she gets paid for  $h$  hours. What domain and range are reasonable for this situation?
- A Domain:  $1 < h < 11$ ; Range:  $0 < p < 7.75$
  - B Domain:  $0 \leq h \leq 11$ ; Range:  $0 \leq p \leq 7.75$
  - C Domain:  $1 \leq h \leq 11$ ; Range:  $1 \leq p \leq 85.25$
  - D Domain:  $0 \leq h \leq 11$ ; Range:  $0 \leq p \leq 85.25$
- 20 Find the range of the function for the domain  $\{-3, 1, 4.5\}$ .  
 $y = -x + 1$
- A  $\{4, 2, -3.5\}$
  - B  $\{-2, 0, -5.5\}$
  - C  $\{-2, 2, -5.5\}$
  - D  $\{4, 0, -3.5\}$
- 21 Find the third, eighth, and tenth terms of the sequence described by the rule.  
 $A(n) = 6 + (n - 5) 2$
- A  $-2, 0, 2$
  - B  $2, 12, 16$
  - C  $-4, 6, 10$
  - D  $-8, -6, -4$

## Chapter 02 Test

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- 22 Find the third, eighth, and tenth terms of the sequence described by the rule.

$$A(n) = 5.1 + (n - 1)5.1$$

- A 10.2, 35.7, 45.9
  - B 5.1, 10.2, 15.3
  - C 25.5, 51, 61.2
  - D 15.3, 40.8, 51
- 23 Tell whether the sequence is arithmetic. If the sequence is arithmetic, write a function rule to represent it.

12, -9, 6, -3, ...

- A no
  - B yes;  $A(n) = 12 + (n - 1)(3)$
  - C yes;  $A(n) = 12 + (n - 1)(-3)$
  - D yes;  $A(n) = -3 + (n - 1)(12)$
- 24 Tell whether the sequence is arithmetic. If the sequence is arithmetic, write a function rule to represent it.

-3, -1, 1, 3, ...

- A no
  - B  $A(n) = -3 + (n - 1)(-2)$
  - C  $A(n) = -3 + (n - 1)(2)$
  - D  $A(n) = 3 - (n - 1)(2)$
- 25 Tell whether the relationship should be represented by a *continuous* or *discrete* graph. Explain.
- the money raised from a raffle with a \$200 prize where the tickets cost \$2.50 per person
- A Continuous; the money raised depends on the number of tickets sold, and since any number of tickets can be sold, this situation is continuous.
  - B Continuous; the money raised depends on the number of tickets sold, and since a person can buy more than one ticket, this situation is continuous.
  - C Discrete; the money raised depends on the number of tickets sold, and since only a whole number of tickets can be sold, this situation is discrete.
  - D Discrete; the \$200 prize is a whole number, so the situation is discrete.

## Chapter 02 Test

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- 26 Tell whether the relationship should be represented by a *continuous* or *discrete* graph. Explain.

the height of a tree over time

- A Continuous; a tree grows gradually, not in steps, so this situation is continuous.
- B Continuous; a tree grows in steps, so this situation is continuous.
- C Discrete; a tree stops growing at a certain age, so this situation is discrete.
- D Discrete; a tree never stops growing, so this situation is discrete.

- 27 Which of the following situations can be represented by a function with an infinite number of values in its range and only a finite number of values in its domain?

- A The cost of a cell phone bill depends on the number of minutes spent talking on the phone. For one billing period, the customer has a maximum of 100 minutes to use.
- B The cost of a cell phone bill depends on the number of minutes spent talking on the phone. Regardless of the number of minutes, the bill can be at most \$100.
- C The cost of a cell phone bill depends on the number of minutes spent talking on the phone. For every minute used on the phone, the cost is \$.15.
- D It is not possible for a function to have an infinite number of values in its range and only a finite number of values in its domain.

- 28 Which of the following statements is true?

- A All relations are functions, and all functions are relations.
- B All relations are functions, but not all functions are relations.
- C All functions are relations, but not all relations are functions.
- D Not all relations are functions, and not all functions are relations.

- 29 An arithmetic sequence is represented by the explicit formula  $A(n) = 2 - 5(n - 1)$ . What is the recursive formula?

- A  $A(n) = A(n - 1) + 5$
- B  $A(n) = A(n - 1) + 2$
- C  $A(n) = A(n - 1) - 5$
- D  $A(n) = A(n - 1) - 2$



## Chapter 02 Test

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30 The rate for mailing an envelope is \$0.80 per ounce. Choose a function rule that represents the total cost,  $c(w)$ , to mail an envelope weighing  $w$  ounces. How much will it cost to mail an envelope that weighs 5 ounces?

A  $c(w) = \frac{w}{0.80}$ ; \$6.25

B  $c(w) = \frac{0.80}{w}$ ; \$.16

C  $c(w) = 0.80w$ ; \$4.00

D  $c(w) = w + 0.80$ ; \$5.80

## Additional Vocabulary Support

### Rate of Change and Slope

#### Concept List

negative slope	positive slope	rate of change
rise	run	slope
slope formula	slope of horizontal line	slope of vertical line

Choose the concept from the list above that best represents the item in each box.

<p>1. <math>\frac{y_2 - y_1}{x_2 - x_1}</math></p>	<p>2. </p>	<p>3. </p>
<p>4. <math>\frac{\text{vertical change}}{\text{horizontal change}}</math></p>	<p>5. </p>	<p>6. </p>
<p>7. </p>	<p>8. <math>\frac{\text{change in the dependent variable}}{\text{change in the independent variable}}</math></p>	<p>9. </p>