Name _____ Date _____ Class _____

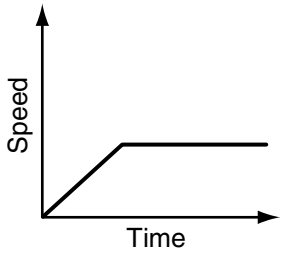
CHAPTER 4

Chapter Test

Form A

Select the best answer.

1. Which situation could be represented by the graph below?



A The speed increases and then decreases.

B The speed increases and then remains constant.

2. Which situation would be represented by a graph with points that are *not connected*?

A The temperature of soup as it cools to room temperature

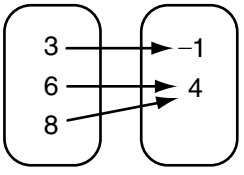
B The height of a plant as it grows

C The distance traveled on a bike

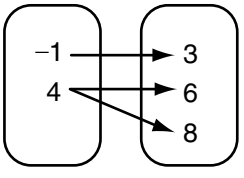
D The number of shoppers who visited a store each day of the week

3. Which mapping diagram shows the relation $\{(3, -1), (6, 4), (8, 4)\}$?

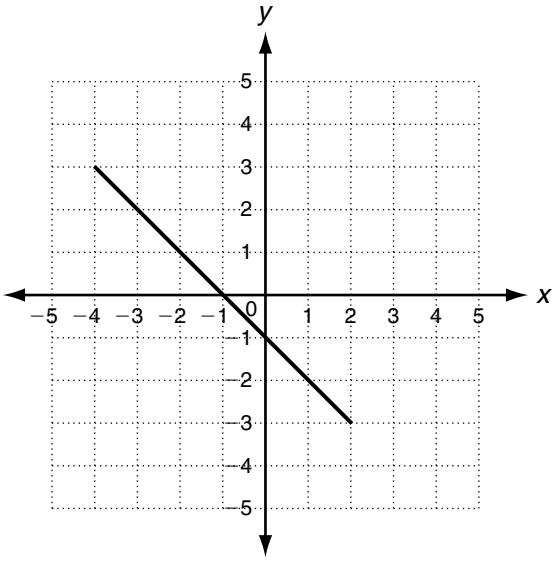
A



B



4. What is the domain of the relation below?



A $-4 \leq x \leq 2$

B $-3 \leq x \leq 3$

5. What is the range of the relation below?

x	3	6	8	9
y	0	5	6	7

A $\{3, 6, 8, 9\}$

B $\{0, 5, 6, 7\}$

6. Which of the following relations is a function?

A $\{(1, -6), (3, -5), (1, 0)\}$

B $\{(0, 5), (5, -1), (5, 9)\}$

C $\{(6, 1), (6, 2), (6, 3)\}$

D $\{(0, 8), (1, 7), (2, 6)\}$

7. Which equation shows the relationship between the x- and y- values below?

x	0	1	2	3	4
y	0	5	10	15	20

A $y = 5x$

B $y = x + 4$

C $y = \frac{x}{5}$

D $y = x - 4$

Name _____ Date _____ Class _____

CHAPTER 4

Chapter Test

Form A continued

8. Which function could represent the following situation: "Tickets cost $8.50 each."

A $f(t) = t + 8.50$ **C** $f(t) = 8.50t$

B $f(t) = \frac{t}{8.50}$ **D** $f(t) = \frac{8.50}{t}$

9. The popcorn in a vending machine costs $0.75 per bag. Which function rule describes the situation?

A $f(\text{b}) = \$0.75b$

B $f(\text{b}) = \$0.75 + b$

10. Evaluate the function $f(x) = 2x + 8$ when $x = 6$.

A 16 **C** 28

B 20 **D** 96

11. Which is the independent variable in the following situation?
"*Eliza jogs more often in the summer months than in the winter months*."

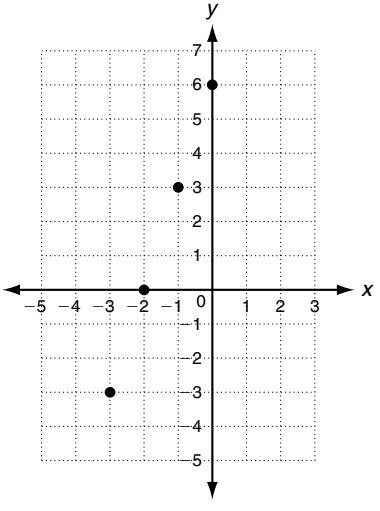
A how often Eliza jogs

B day of the week

C type of exercise

D time of year

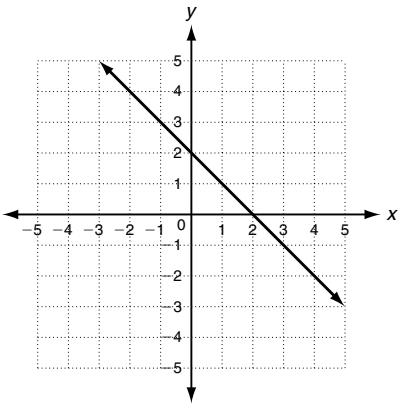
12. Which function is graphed for the domain $\{-3, -2, -1, 0\}$?



A $y = 2x + 4$

B $y = 3x + 6$

13. Which function is graphed below?

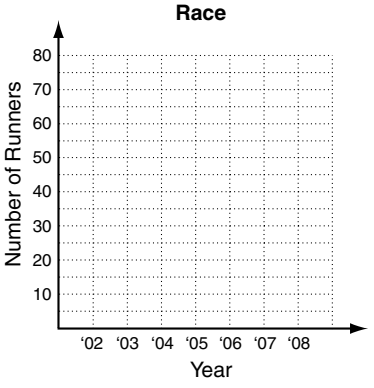


A $y = 2x$ **C** $y = 2 - x$

B $y = 4x$ **D** $y = x + 2$

14. The table shows the number of runners in a race for four years. Draw a scatter plot and trend line.

Year	'02	'03	'04	'05
Number of Runners	21	35	46	50



Which is the best prediction for the number of runners in 2007?

A 40 **B** 72

15. Find the next three terms of the arithmetic sequence 3, 7, 11, 15, …

A 19, 23, 27 **B** 16, 19, 22

16. What is the 22nd term of the arithmetic sequence 12, 17, 22, 27,…?

A 105 **C** 122

B 117 **D** 132

Name _____ Date _____ Class _____

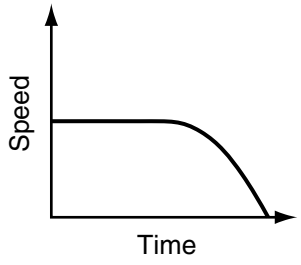
CHAPTER 4

Chapter Test

Form B

Select the best answer.

1. Which situation could be represented by the graph below?



A A person slows down and then travels at a constant speed.

B A person travels at a constant speed and then slows down.

C A person travels at a constant speed and then speeds up.

D A person speeds up and then travels at a constant speed.

2. Which situation would NOT be represented by a graph with distinct points?

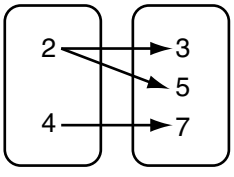
F Cost of buying 1, 2, or 3 packs of trading cards

G Number of visitors to a movie theater per day for one week

H Distance traveled by a rollercoaster car during 20 seconds

J Amount of money earned based on the number of magazines sold

3. Which relation is represented by the mapping diagram below?



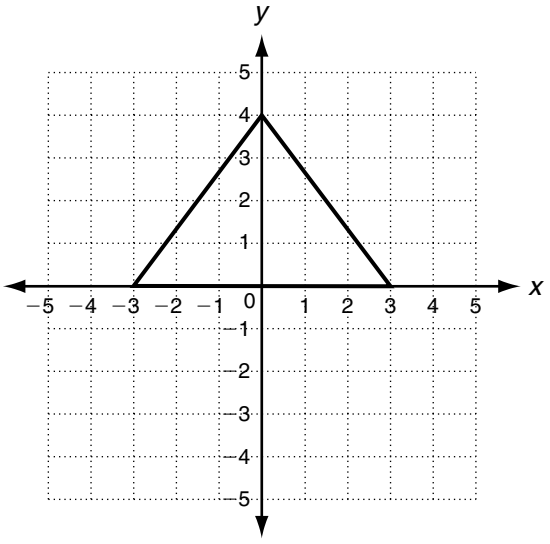
A $\{(3, 2), (5, 2), (7, 4)\}$

B $\{(2, 3), (4, 7)\}$

C $\{(5, 2), (7, 4)\}$

D $\{(2, 3), (2, 5), (4, 7)\}$

4. What is the domain of the relation below?



F $0 \leq x \leq 3$

G $0 \leq x \leq 4$

H $-3 \leq x \leq 3$

J $-3 \leq x \leq 4$

5. What is the range of the relation below?

x	0	1	2	3
y	1	2	4	8

A $\{1, 2\}$

B $\{0, 1, 2, 3\}$

C $\{1, 2, 4, 8\}$

D $\{0, 1, 2, 3, 4, 8\}$

6. Which of the following relations is NOT a function?

F $\{(1, 5), (3, -1), (7, 9)\}$

G $\{(1, 5), (2, 5)\}$

H $\{(1, 1), (2, 2), (3, 3)\}$

J $\{(5, 1), (5, 2)\}$

7. Which equation shows the relationship between x and y in $\{(1, -3), (2, -1), (3, 1)\}$?

A $y = 2x - 5$

B $y = x - 4$

C $y = 2x$

D $y = x - 2$

Name _____ Date _____ Class _____

CHAPTER 4

Chapter Test

Form B continued

8. Which function could represent the following situation: "An internet cafe charges $0.20 per minute."

F $f(m) = m + 0.20$ **H** $f(m) = 0.20m$

G $f(m) = \frac{m}{20}$ **J** $f(m) = 20m$

9. An architect must convert 216, 183, and 129 yards to feet. Which function rule describes the situation?

A $f(y) = \frac{y}{3}$ **C** $f(y) = \frac{3}{y}$

B $f(y) = 3y$ **D** $f(y) = y - 3$

10. Evaluate the function $f(x) = 3x^2 - 5$ when $x = -11$.

F -358 **H** 38

G -38 **J** 358

11. Which is the dependent variable in the following situation?
"Milk sells for $3.39 per gallon."

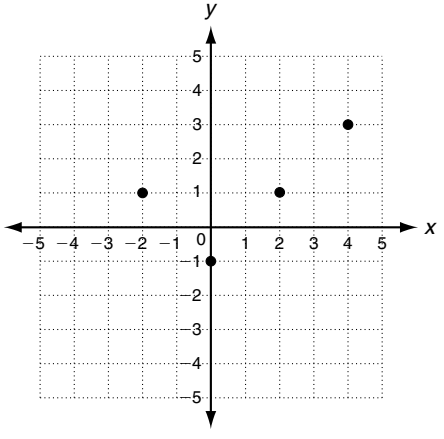
A number of gallons

B total cost

C expiration date

D time of purchase

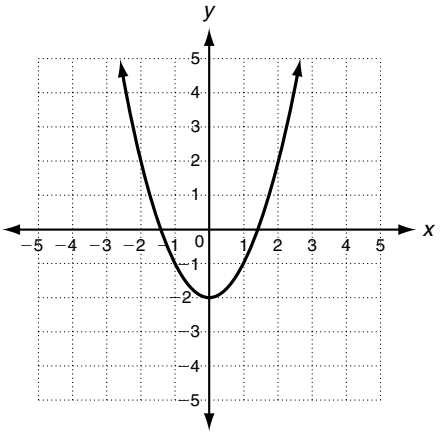
12. Which function is graphed for the domain $\{-2, 0, 2, 4\}$?



F $y = x - 1$ **H** $y = x^2 - 1$

G $y = |x| - 1$ **J** $y = |x - 1|$

13. Which function is graphed below?

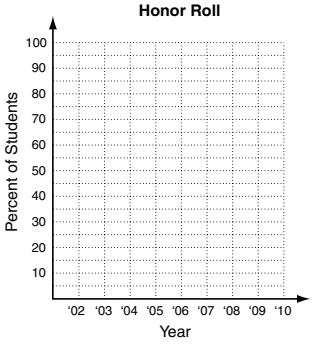


A $y = x - 2$ **C** $y = x^2 - 2$

B $y = 2x$ **D** $y = 2x + 1$

14. The table shows the percent of students on the honor roll for four years. Draw a scatter plot and trend line.

Year	Honor Roll
'02	35%
'03	42%
'04	38%
'05	48%



Which is the best prediction for the percent of students on the honor roll in 2009?

F 35% **H** 55%

G 40% **J** 70%

15. Find the next three terms of the arithmetic sequence 5, 11, 17, 23, …

A 29, 34, 38 **C** 25, 31, 37

B 28, 33, 38 **D** 29, 35, 41

16. What is the 18th term of the arithmetic sequence 2, -2, -6, -10,…?

F -72 **H** -68

G -70 **J** -66

Name _____ Date _____ Class _____

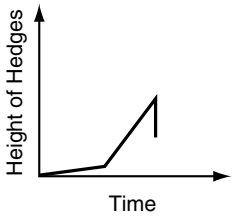
CHAPTER 4

Chapter Test

Form C

Select the best answer.

1. Which situation could be represented by the graph below?



A The hedges grew rapidly at first, and then grew slowly during a drought.

B The hedges grew slowly at first, but then grew faster with fertilizer before someone trimmed them.

C The hedges grew rapidly, and then stayed at the same height because they were trimmed often.

D The hedges were trimmed monthly, but grew rapidly between trimmings.

2. Which of the following, when graphed over time, would be a discrete graph?

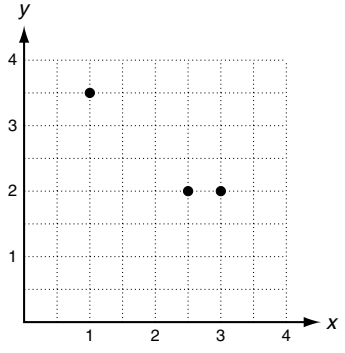
F Number of pets in a shelter

G Amount of water in a pool

H Elevation of a hiker

J Weight of a pony

3. Which relation could this graph represent?



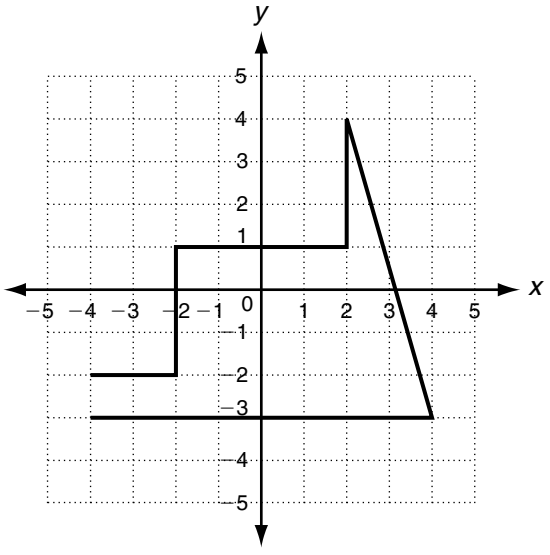
A $\{(1, 3.5), (2.5, 2), (3, 2)\}$

B $\{(1, 4.5), (3.5, 2), (3, 2)\}$

C $\{(3.5, 1), (2, 2.5), (2, 3)\}$

D $\{(4.5, 1), (2, 3.5), (2, 3)\}$

4. What is the range of the relation below?



F $-4 \le y \le 4$

G $-3 \le y \le -2$

H $-3 \le y \le 4$

J $-2 \le y \le 4$

5. What is the domain of the relation below?

x	-4	-2	0	2
y	3	5	6	6

A $\{6\}$

B $\{3, 5, 6\}$

C $\{-4, -2, 2\}$

D $\{-4, -2, 0, 2\}$

6. Which of the following relations is NOT a function?

F $\{(-3, -3), (-2, -2), (-1, -1)\}$

G $\{(-4, 2), (-6, 2), (-8, 2)\}$

H $\{(5, -1), (5, -2), (5, -3)\}$

J $\{(-3, 1), (0, 0), (3, 1)\}$

7. Which equation shows the relationship between x and y in $\{(-2, 5), (0, 3), (2, 5)\}$?

A $y = |x - 3|$

B $y = |x| + 3$

C $y = x^2 + 1$

D $y = x^2 + 3$

Name _____ Date _____ Class _____

CHAPTER 4

Chapter Test

Form C continued

8. Which function could represent the following situation: "The engraving costs $20 plus $0.05 per letter."

F $f(l) = 0.5 + 20l$ **H** $f(l) = 20.05l$

G $f(l) = 20 + 0.05l$ **J** $f(l) = 25l$

9. Nancy has $200 and spends $10 each week. Which function rule describes the situation?

A $f(d) = 200 - 10d$ **C** $f(d) = 190d$

B $f(d) = 200 + 10d$ **D** $f(d) = 210d$

10. Evaluate the function $f(x) = \frac{x^2}{3} - 2$ when $x = -6$.

F -14 **H** 2

G -6 **J** 10

11. Which is the dependent variable in the following situation?
"*The teacher ordered two binders for each student.*"

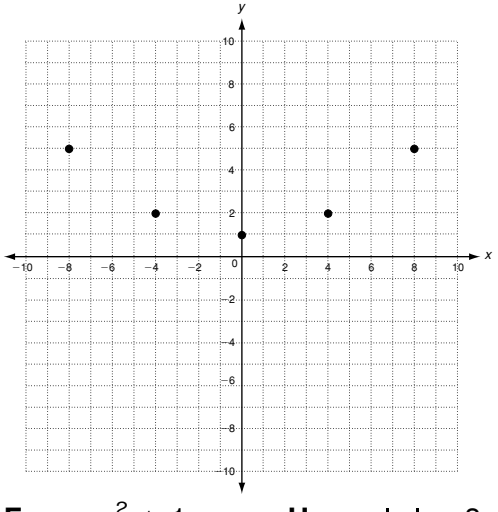
A total cost

B date of order

C number of binders

D number of students

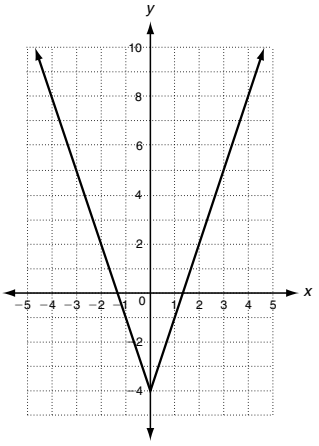
12. Which function is graphed for the domain $\{-8, -4, 0, 4, 8\}$?



F $y = x^2 + 1$ **H** $y = |x| - 3$

G $y = \left(\frac{x}{4}\right)^2 + 1$ **J** $y = \frac{|x|}{2}$

13. Which function is graphed below?

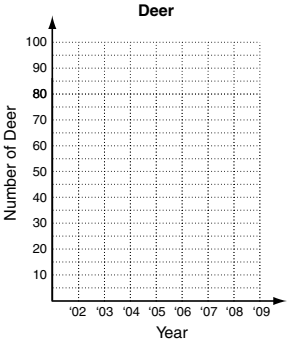


A $y = x - 4$ **C** $y = |3x| - 4$

B $y = |x - 4|$ **D** $y = 3x - 4$

14. The table shows the number of deer in a certain forest over five years. Draw a scatter plot and trend line.

Year	Deer
'02	88
'03	82
'04	80
'05	66
'06	55



Which is the best prediction for the number of deer in the forest in 2008?

F 15 **H** 80

G 45 **J** 70

15. Find the next three terms of the arithmetic sequence,

0, –1.5, –3, –4.5, …

A –6.5, –8, –9.5 **C** –5, –6.5, –7

B –6, –7.5, –9 **D** –4, –5.5, –6

16. What is the 33rd term of the arithmetic sequence 9.4, 10.6, 11.8, 13,…?

F 38.4 **H** 47.8

G 39.6 **J** 49

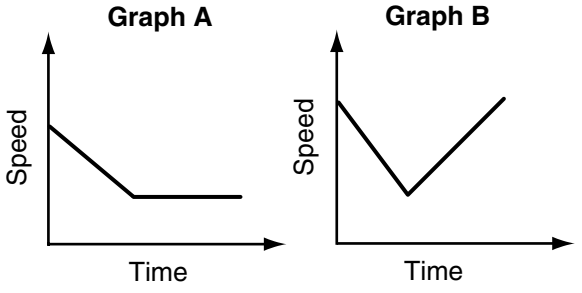
Name _____ Date _____ Class _____

CHAPTER 4

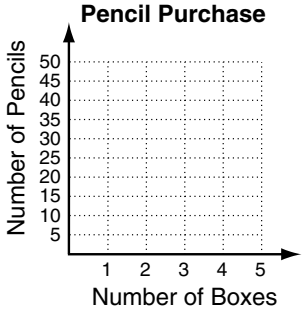
Chapter Test

Form A

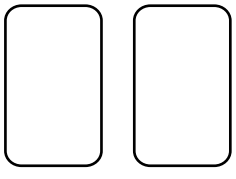
1. A car slows down to avoid a hole in the road and then travels at a constant speed. Choose the graph that best represents this situation.



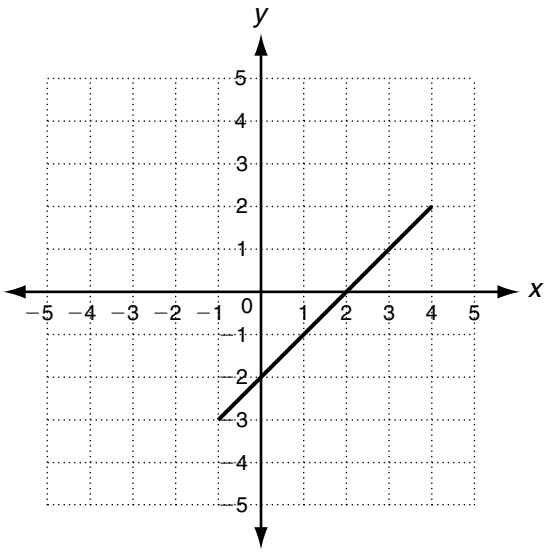
2. A school secretary is buying pencils. The pencils come in boxes of 10. Sketch a graph to show the number of pencils the secretary could buy if she has enough money to buy 1, 2, 3, or 4 boxes. Tell whether the graph is continuous or discrete.



3. Express the relation $\{(2, 3), (2, 4), (5, 9)\}$ as a mapping diagram.



4. Give the domain of the relation.



5. Give the range of the relation.

x	1	2	3	4
y	2	2	5	6

6. Tell whether the relation is a function. Explain.

$\{(-4, -1), (-3, 0), (-2, 1), (-1, 2)\}$

7. Determine a relationship between the x- and y-values. Write an equation.

x	0	1	2	3	4
y	−2	−1	0	1	2

Name _____ Date _____ Class _____

CHAPTER 4

Chapter Test

Form A continued

Write a rule in function notation for each situation.

8. Airport parking is available for $8 per day.

_____

9. A glass of iced tea costs $2.00. Refills cost $0.25 each.

_____

10. Evaluate the function $f(x) = 6x - 1$ when $x = 0$ and when $x = 4$.

_____

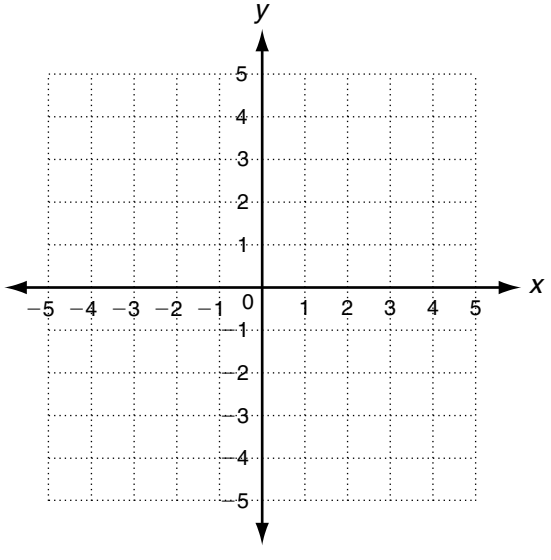
11. Identify the independent and dependent variables.
A photo lab charges $0.15 per print.

_____

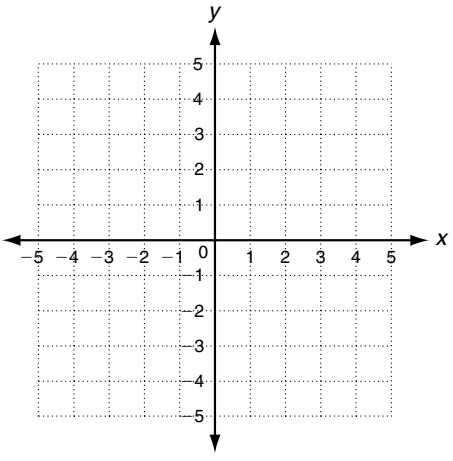
_____

Graph each function.

12. $y = \frac{1}{2}|x|$; D: $\{-2, 0, 2, 4\}$

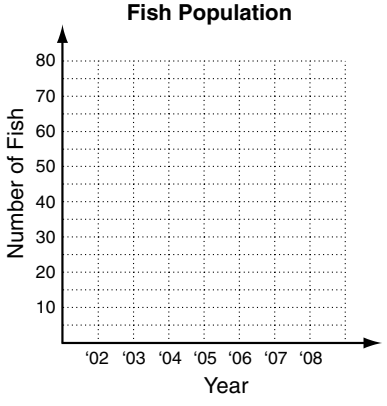


13. $y = -x + 3$



14. The table shows the number of fish in a small pond over four years. Draw a scatter plot and trend line.

Year	’02	’03	’04	’05
Number of Fish	32	37	41	50



Based on the trend line, predict how many fish will be in the pond in 2007.

_____

15. Find the next three terms of the arithmetic sequence 2, 9, 16, 23, …

_____

16. What is the 45th term of the arithmetic sequence 58, 61, 64, 67,…?

_____

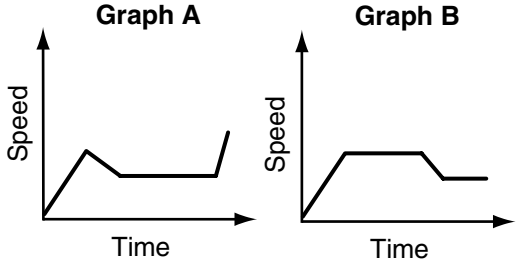
Name _____ Date _____ Class _____

CHAPTER 4

Chapter Test

Form B

1. A runner in a race ran quickly for the first few minutes, slowed down some and ran a steady pace for most of the race, and then ran as fast as he could at the very end. Choose the graph that best represents this situation.

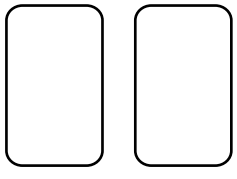


_____

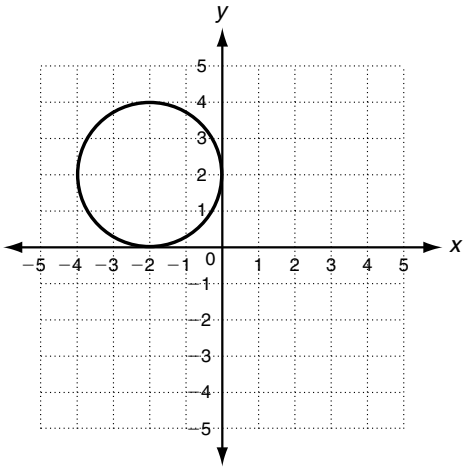
2. Dog food is sold in 7 pound bags. Sketch a graph to show the weight of dog food purchased by a customer who buys 0, 1, 2, 3, or 4 bags. Tell whether the graph is continuous or discrete.

_____

3. Express the relation $\{(-2, 3), (2, 4), (-3, 4)\}$ as a mapping diagram.



4. Give the range of the relation.



_____

5. Give the domain of the relation.

x	-1	-0.5	0	0.5
y	2	2	5	6

_____

6. Tell whether the relation is a function. Explain.
$\{(4, -1), (3, -2), (2, 1), (1, -2)\}$

_____

_____

_____

7. Determine a relationship between the x- and y-values. Write an equation.

x	1	2	3	4	5
y	2	5	8	11	14

_____

Name _____ Date _____ Class _____

CHAPTER 4

Chapter Test

Form B continued

Write a rule in function notation for each situation.

8. A car can travel 32.5 miles per gallon of gasoline.

_____

9. A lawyer will be paid $\frac{1}{3}$ of the amount awarded in a lawsuit.

_____

10. Evaluate the function $f(x) = (2x)^2 - 1$ when $x = 2$ and when $x = -1$.

_____

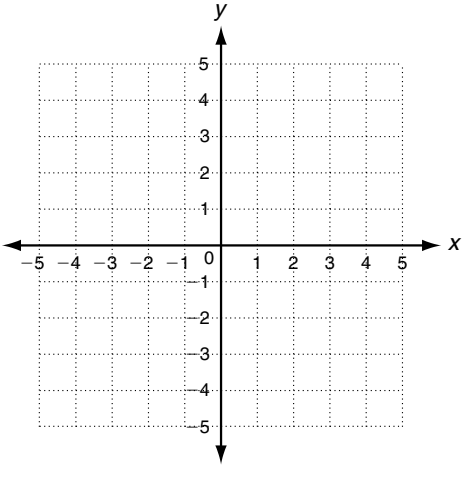
11. Identify the independent and dependent variables.
A certain movie earns $1200 for each screen it is shown on.

_____

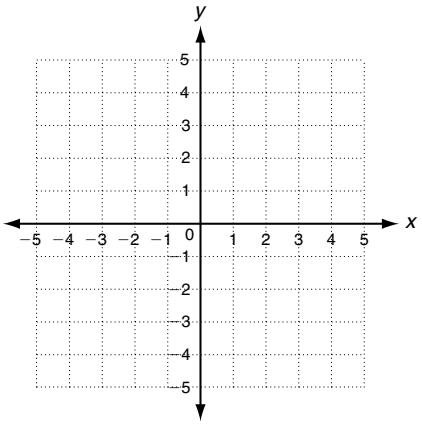
_____

Graph each function.

12. $y = |x - 1|$; D: $\{-3, -1, 1, 3\}$

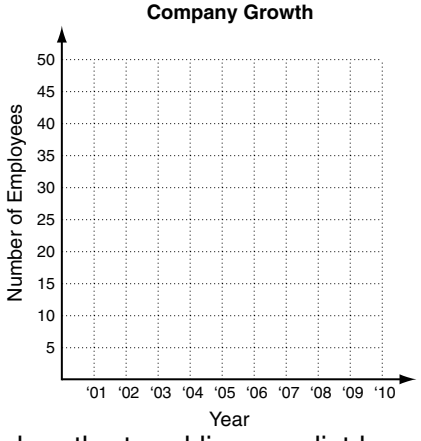


13. $y = x^2 - 4$



14. The table shows the number of employees in a company over five years. Draw a scatter plot and trend line.

Year	'01	'02	'03	'04	'05
Employees	15	20	23	30	34



Based on the trend line, predict how many employees the company will have in 2008.

_____

15. Find the next three terms of the arithmetic sequence 8, 14, 20, 26, …

_____

16. What is the 57th term of the arithmetic sequence 11, 8, 5, 2,…?

_____

Name _____ Date _____ Class _____

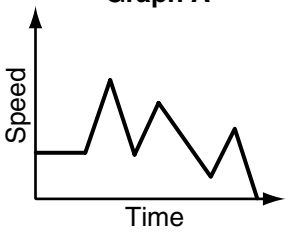
CHAPTER 4

Chapter Test

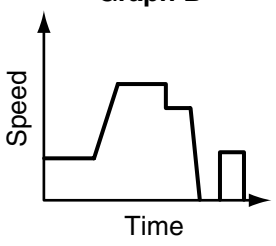
Form C

1. A man walks to the train station, takes a train into the city, takes a taxi, waits on a bench, and then walks home. Choose the graph that best represents this situation.

Graph A

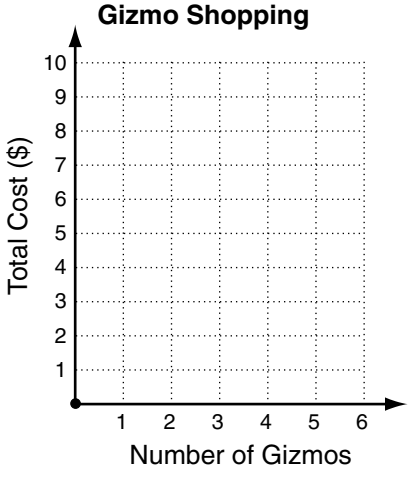


Graph B



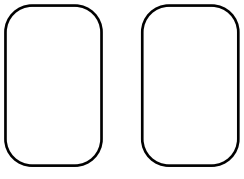
_____

2. A gizmo sells for $1.25. Sketch a graph to show the total cost if a customer buys 0, 1, 2, 3, or 4 gizmos. Tell whether the graph is continuous or discrete.

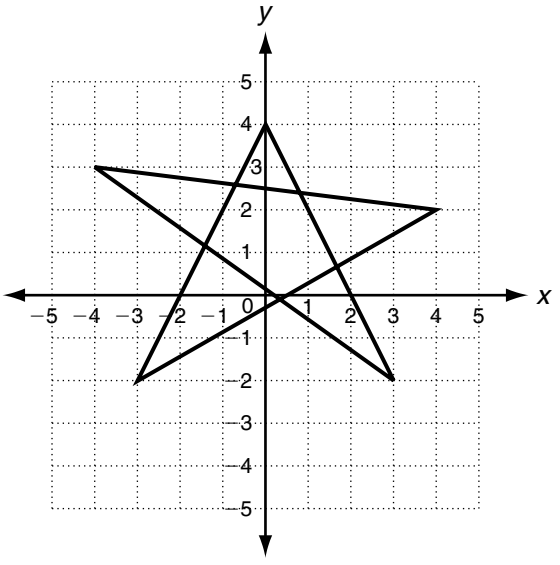


_____

3. Express the relation {(−2, 3), (2, 3), (5, 3), (−2, 4)} as a mapping diagram.



4. Give the range of the relation.



_____

5. Give the domain of the relation.

x	−2	−1	0	3.5	4.2
y	2	2.1	5.1	5.5	6.0

_____

6. Tell whether the relation is a function. Explain.

{(−4, 0), (−3, 0), (−2, 1), (1, −2), (−3, 4)}

_____

_____

_____

7. Determine a relationship between the *x*- and *y*-values. Write an equation.

x	0	1	2	3	4
y	1	2	5	10	17

_____

Name _____ Date _____ Class _____

CHAPTER 4

Chapter Test

Form C continued

Write a rule in function notation for each situation.

8. The cost of membership is $21 plus $5.50 each month.

_____

9. Sales tax is 7% of the total price.

_____

10. Evaluate the function $f(x) = \frac{|1 - x|}{2} + 2$ when $x = 0$ and when $x = -3$.

_____

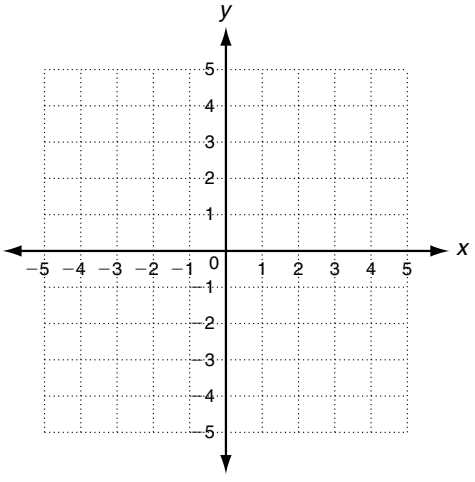
11. Identify the independent and dependent variables.
The essay instructions were to write three facts about each person listed.

_____

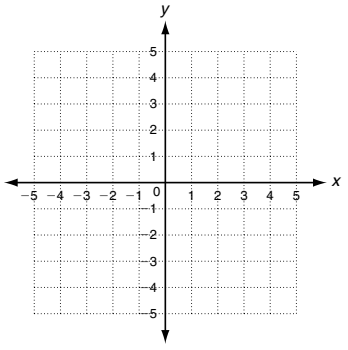
_____

Graph each function.

12. $y = \frac{x^2}{2} - 3$; D: $\{-4, -2, 0, 2\}$

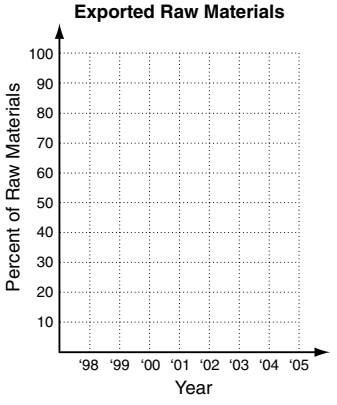


13. $f(x) = |3 - x| + 1$



14. The table shows the percent of raw materials exported over a four year period. Draw a scatter plot and trend line.

Year	’98	’99	’00	’01
Raw Materials	60%	52%	54%	48%



Based on the trend line, predict the percent of raw materials exported in 2004.

_____

15. Find the next three terms of the arithmetic sequence $\frac{1}{8}, \frac{1}{4}, \frac{3}{8}, \frac{1}{2}, \ldots$

_____

16. What is the 37th term of the arithmetic sequence 4.1, 3, 1.9, 0.8,…?

_____

Chapter Test Form A

1. B
2. D
3. A
4. A
5. B
6. D
7. A
8. C
9. A
10. B
11. D
12. B
13. C
14. B
15. A
16. B

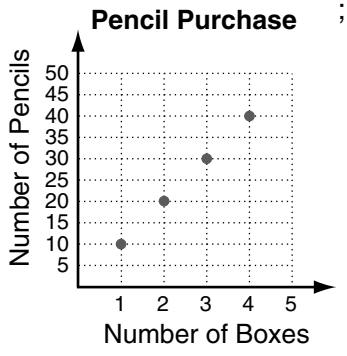
Chapter Test Form B

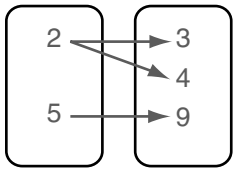
1. B
2. H
3. D
4. H
5. C
6. J
7. A
8. H
9. B
10. J
11. B
12. G
13. C
14. J
15. D
16. J

Chapter Test Form C

1. B
2. F
3. A
4. H
5. D
6. H
7. B
8. G
9. A
10. J
11. C
12. G
13. C
14. G
15. B
16. H

Chapter Test Form A

1. Graph A
2. 

; discrete
3. 

4. $-1 \leq x \leq 4$

5. R: {2, 5, 6}

6. yes; each domain value is paired with only one range value.

7. $y = x - 2$

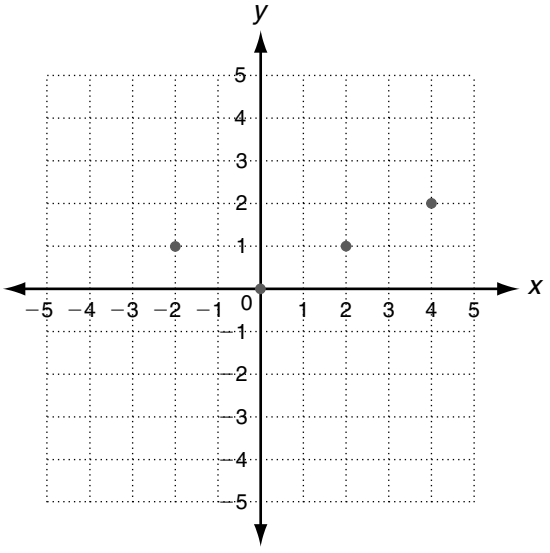
8. $f(d) = 8d$

9. $f(r) = 2 + 0.25r$

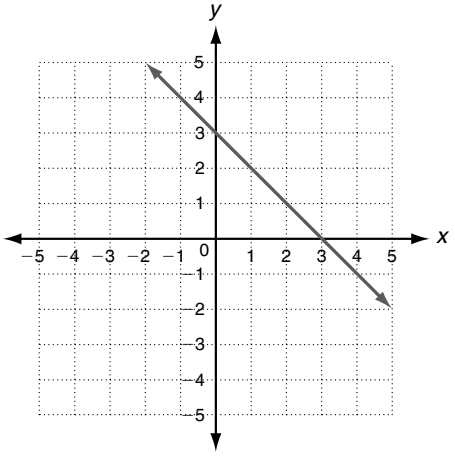
10. −1, 23

11. I: number of prints; D: total cost

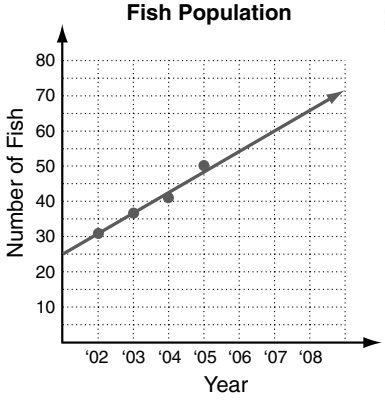
12.



13.



14.



; 60

15. 30, 37, 44

16. 190

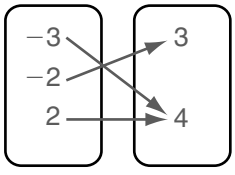
Chapter Test Form B

1. Graph A

2.

; discrete

3.



4. $0 \leq y \leq 4$

5. D: {−1, −0.5, 0, 0.5}

6. yes; each domain value is paired with only one range value.

7. $y = 3x - 1$

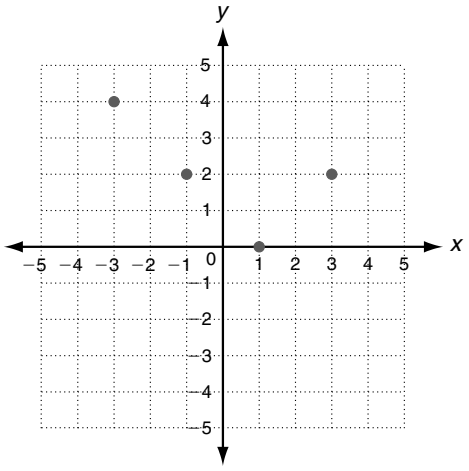
8. $f(g) = 32.5g$

9. $f(a) = \frac{1}{3}a$

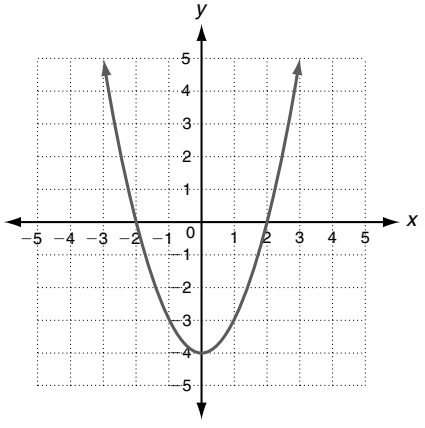
10. 15, 3

11. I: number of screens; D: total earnings

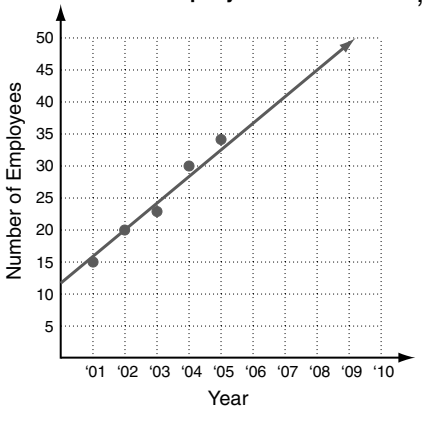
12.



13.



14.



; 45

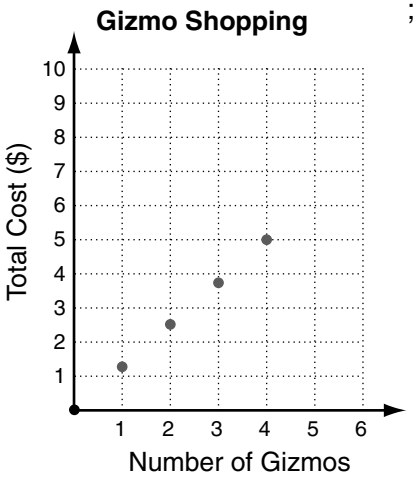
15. 32, 38, 44

16. −157

Chapter Test Form C

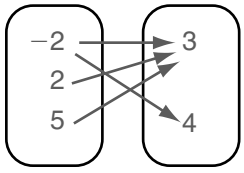
1. Graph B

2.



; discrete

3.



4. $-2 \leq y \leq 4$

5. D: {−2, −1, 0, 3.5, 4.2}

6. no; −3 is matched with two different range values.

7. $y = x^2 + 1$

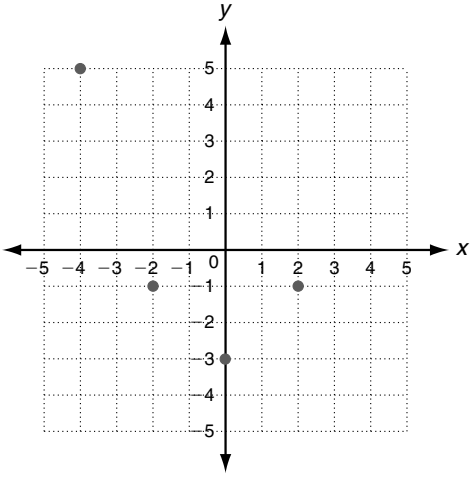
8. $f(m) = 21 + 5.5m$

9. $f(p) = (0.07)p$

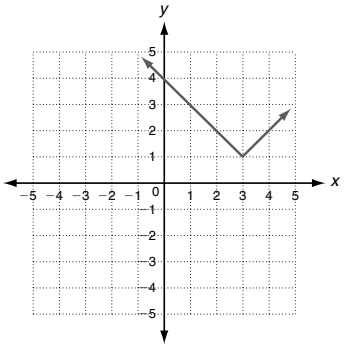
10. 2.5, 4

11. I: number of people on list; D: number of facts

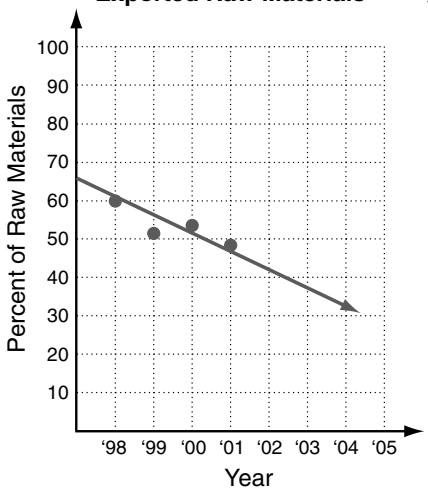
12.



13.



14.



; 32

15. $\frac{5}{8}, \frac{3}{4}, \frac{7}{8}$

16. −35.5

Performance Assessment

1.

Letter	Number
A	2
B	2
C	2
D	3
E	3
F	3
G	4
H	4
I	4
J	5
K	5
L	5
M	6

Letter	Number
N	6
O	6
P	7
Q	7
R	7
S	7
T	8
U	8
V	8
W	9
X	9
Y	9
Z	9

2. the letters of the alphabet

3. the whole numbers 2 through 9

4. Yes, because each letter corresponds to only one number.

5. 4 3 5 5 6

6. the whole numbers 2 through 9

7. the letters of the alphabet

8. No, because each number corresponds to 3 or 4 letters.

9. DMG, DMH, DMI, DNG, DNH, DNI, DOG, DOH, DOI, EMG, EMH, EMI, ENG, ENH, ENI, EOG, EOH, EOI, FMG, FMH, FMI, FNG, FNH, FNI, FOG, FOH, and FOI.

10. Possible answer: DOG

Cumulative Test

1. B

2. H

3. B

4. H

5. B

6. F

7. D

8. F

9. C

10. J

11. A

12. J

13. A

14. H

15. C

16. F

17. D

18. J

19. B