

**Algebra 1, Chapter 4 Post Test      Review**

**4.1.1: I can represent mathematical relationships using graphs.**

1. (2 points)

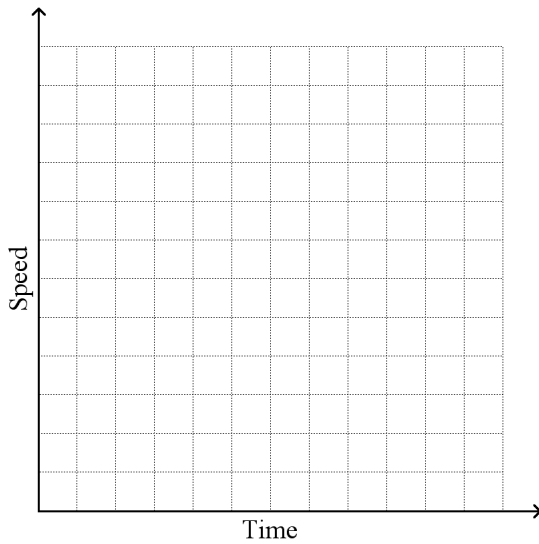
Sketch a graph of the speed of a city bus on a daily route. Label each section.

A - bus pulls away from a stop and increases speed

B - bus is at a constant speed between stops

C - bus is stopped

D - bus increases speed after stopping

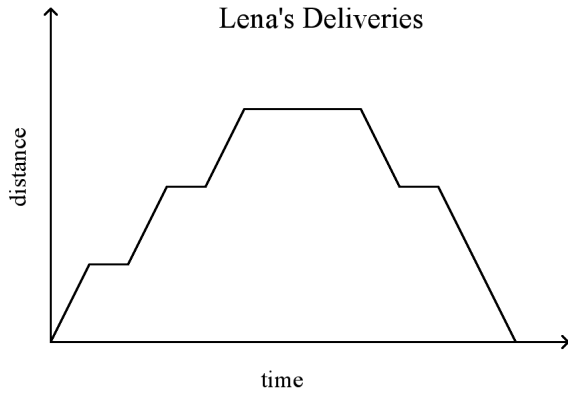


Name: \_\_\_\_\_

ID: A

2. (4 points)

Lena makes home deliveries of groceries for a supermarket. Her only stops after she leaves the supermarket are at traffic lights and the homes where she makes the deliveries. The graph shows her distance from the store on her first trip for the day. What are the variables? Describe how the variables are related at various points on the graph.

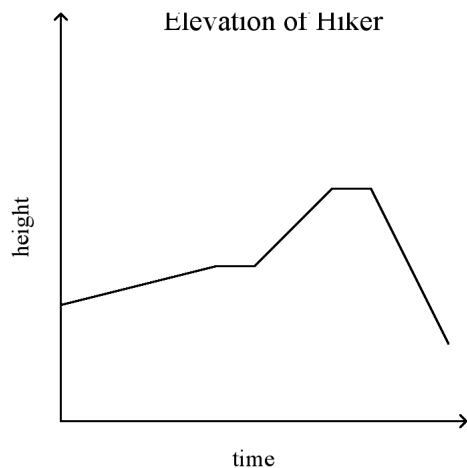


3. (1 point)

A hiker climbs up a steep bank and then rests for a minute. He then walks up a small hill and finally across a flat plateau. What sketch of a graph could represent the elevation of the hiker?

4. (1 point)

The graph shows the height of a hiker above sea level. The hiker walks at a constant speed for the entire trip. What are the variables? Describe how the variables are related at various points on the graph.

**4.4.1: I can graph equations that represent functions.**

5. (1 point)

A taxi company charges passengers \$1.75 for a ride, and an additional \$0.20 for each mile traveled. The function rule  $C = 0.20m + 1.75$  describes the relationship between the number of miles  $m$  and the total cost of the ride  $c$ . If the taxi company will only go a maximum of 40 miles, what is a reasonable graph of the function rule?

Name: \_\_\_\_\_

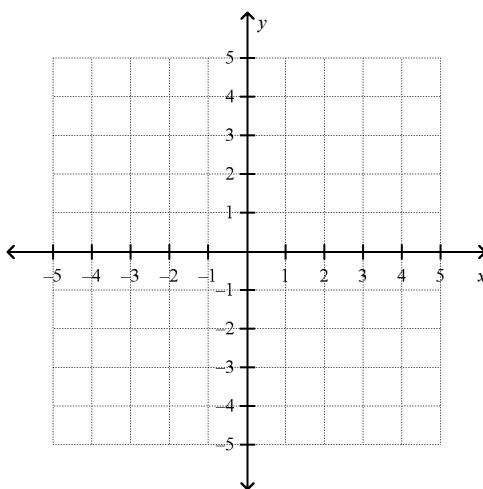
ID: A

6. (3 points)

Use the function rule to make a table of values and a graph.

$$y = -x^2 - 1$$

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



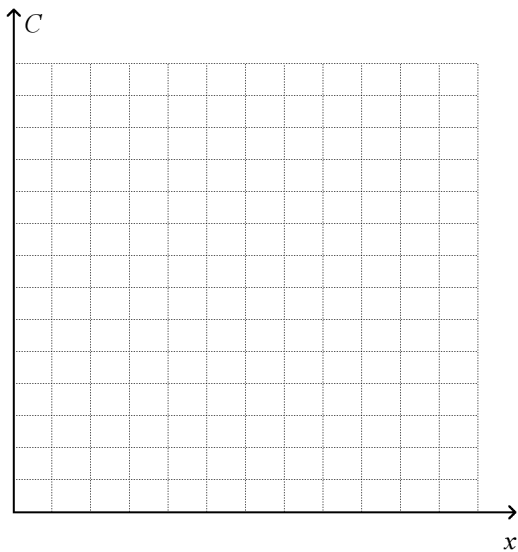
Name: \_\_\_\_\_

ID: A

7. (3 points)

Elaine has a business repairing home computers. She charges a base fee of \$30 for each visit and \$40 per hour for her labor. The total cost  $C$  for a home visit and  $x$  hours of labor is modeled by the function rule  $C = 40x + 30$ . Use the function rule to make a table of values and a graph.

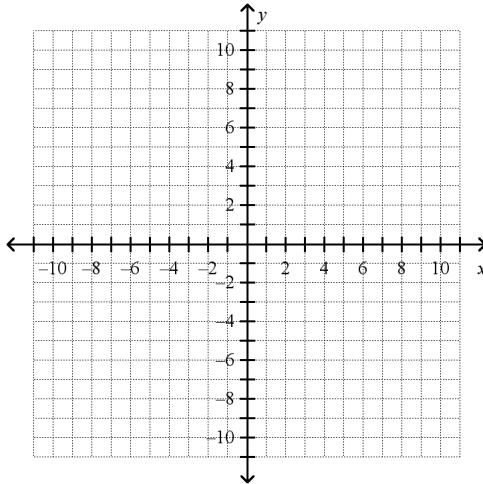
$x$	$C$
0	
1	
2	
3	



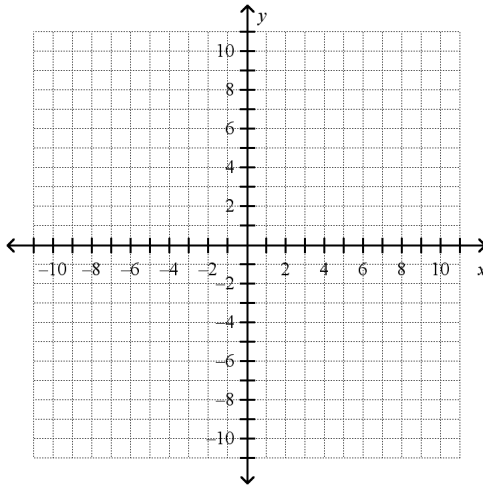
Name: \_\_\_\_\_

ID: A

8. (1 point)  
 $y = 3x - 2$



9. (1 point)  
 $y = |x| - 1$



**4.5.1: I can write an equation that represents a function.**

10. (2 points)  
A produce stand sells roasted peanuts for \$2.35 per pound. What is the cost,  $C$ , of  $p$  pounds of peanuts? Then state whether the function is continuous or discrete.

Name: \_\_\_\_\_

ID: A

11. (2 points)

A movie store sells DVDs for \$20 each. What is the cost,  $C$ , of  $n$  DVDs? Then state whether the function is continuous or discrete.

12. (1 point)

Tickets to a concert are available online for \$20 plus a one-time handling fee of \$2.75. The total cost is a function of the number of tickets bought. What function rule models the cost of the concert tickets? What is the independent variable and the dependent variable?

**4.6.1: I can find domain and range and use function notation.**

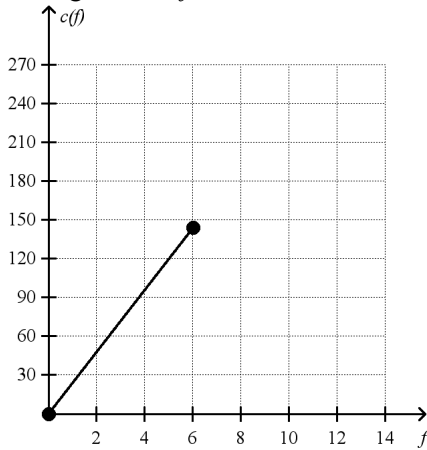
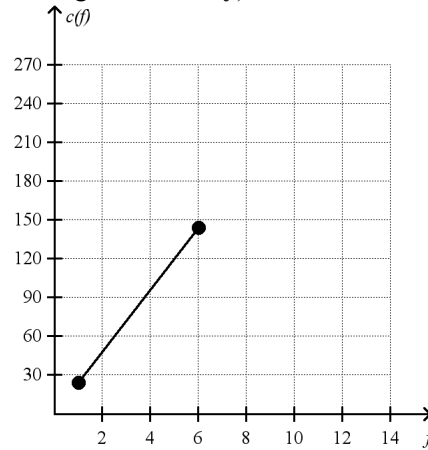
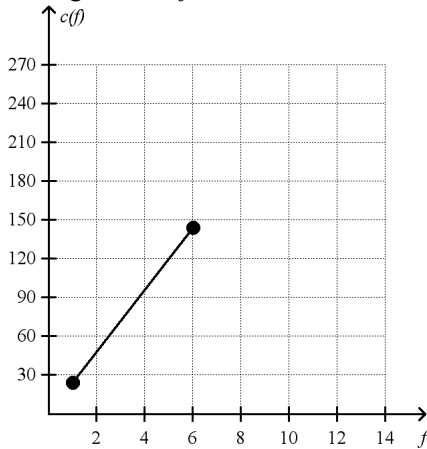
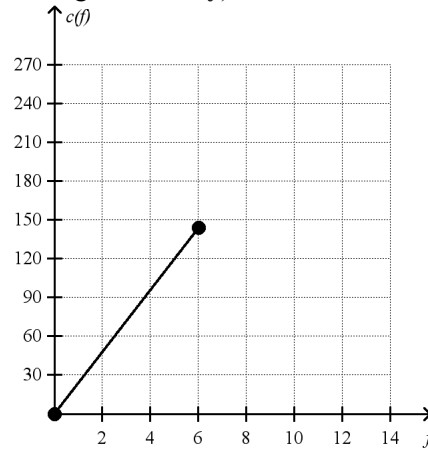
13. (2 points)

Identify the domain and range of the relation.

$\{(1, 0), (-6, -6), (1, 10), (7, -12)\}$

14. (1 point)

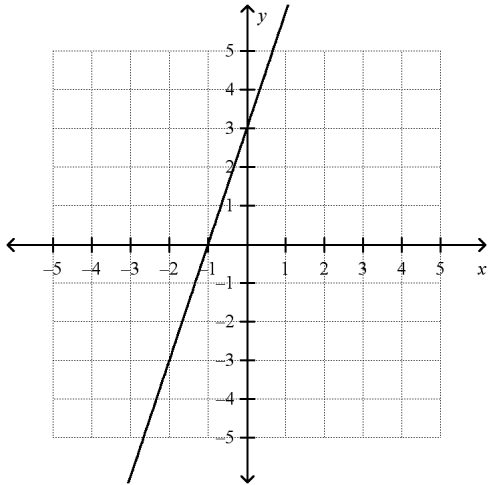
You have 6 cups of flour. It takes 1 cup of flour to make 24 cookies. The function  $c(f) = 24f$  represents the number of cookies,  $c$ , that can be made with  $f$  cups of flour. What domain and range are reasonable for the function? What is the graph of the function?

a. The domain is  $0 \leq c(f) \leq 144$ .The range is  $0 \leq f \leq 6$ .c. The domain is  $1 \leq f \leq 6$ .The range is  $24 \leq c(f) \leq 144$ .b. The domain is  $24 \leq c(f) \leq 144$ .The range is  $1 \leq f \leq 6$ .d. The domain is  $0 \leq f \leq 6$ .The range is  $0 \leq c(f) \leq 144$ .



15. (1 point)

Find the domain and range of the relation.

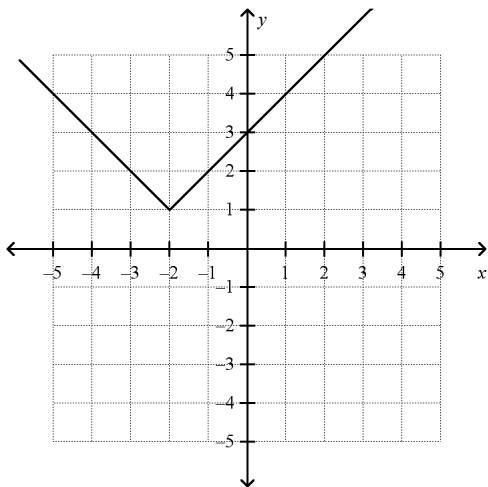


16. (2 points)

Find the range of  $f(x) = 2x - 3$  for the domain  $\{-3, -2, -1, 0\}$ .

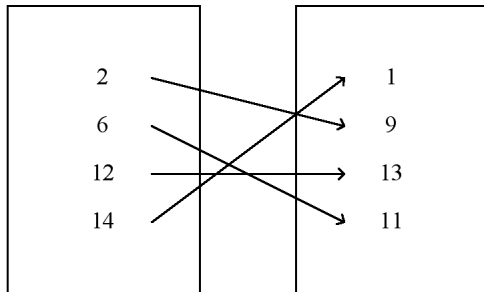
17. (1 point)

Find the domain and range of the following Function.



**4.6.2: I can determine whether a relation is a function.**

18. (1 point)



- a. no
- b. yes

19. (2 points)

$\{(6, 1), (15, 4), (10, 7), (12, 9), (15, 2)\}$

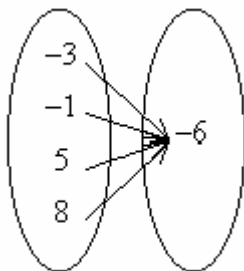
- a. yes
- b. no

20. (2 points)

Identify the mapping diagram that represents the relation and determine whether the relation is a function.

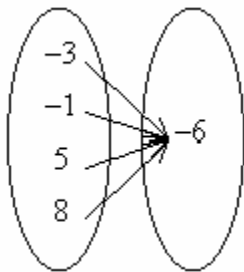
$\{(-3, -6), (-1, -6), (5, -6), (8, -6)\}$

a.



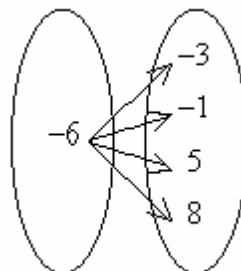
The relation is not a function.

b.



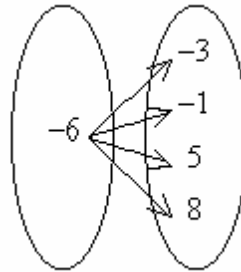
The relation is a function.

c.



The relation is a function.

d.

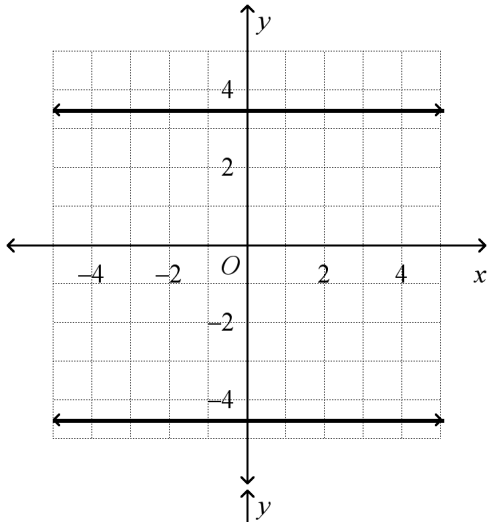


The relation is not a function.

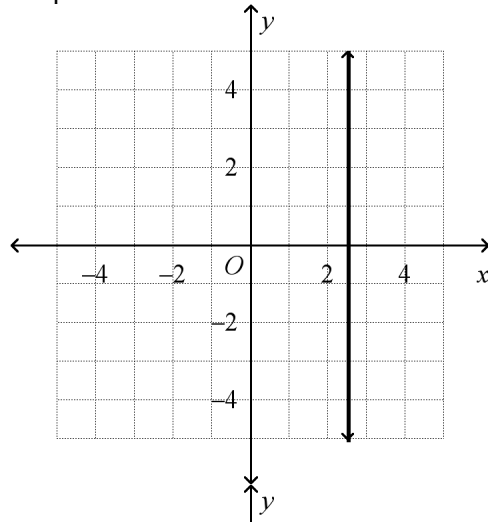
21. (2 points)

Use the vertical-line test to determine which graph represents a function.

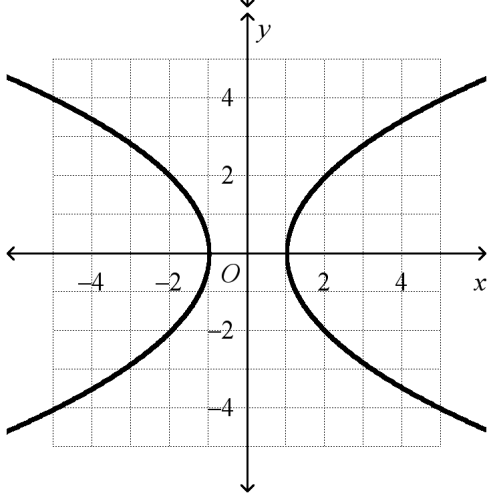
a.



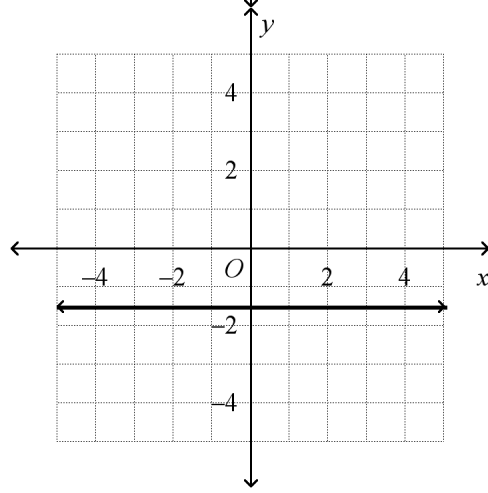
c.



b.



d.



**4.6.3: I can use function notation, identify the independent and dependent variables, and evaluate functions.**

22. (2 points)

A snail travels at a rate of 2.23 feet per minute.

- Write a rule to describe the function, using function notation, declaring the meaning of the variables you have chosen.
- Identify the independent and dependent variables.
- How far will the snail travel in 7 minutes?

23. (1 point)  
Write the following equation in function notation and identify the independent and dependent variables:  
 $y = 3x + 4$

24. (1 point)  
For  $f(x) = -3x + 3$  find  $f(-2)$ .

25. (1 point)  
Find  $a$  if  $g(a) = 12$  and the function rule is  $g(a) = 2a - 4$ .

### REVIEW SECTION

26. (1 point)  
Evaluate  $u + xy$ , for  $u = 18$ ,  $x = 10$ , and  $y = 8$ .

27. (1 point)  
Evaluate  $\frac{u}{z} + xy^2$ , for  $u = 20$ ,  $x = 4$ ,  $y = 7$ , and  $z = 10$ .

28. (1 point)  
To which subsets of the real numbers does the number 22 belong?

29. (1 point)  
To which subsets of the real numbers does the number  $\sqrt{42}$  belong?

**What is the simplified form of each expression?**

30. (1 point)  
 $(2 - 9c)(-8)$

**What is the solution of the equation?**

31. (1 point)  
 $70 = -7(-2 - 2z)$

32. (1 point)  
 $\frac{3p}{5} + \frac{8}{5} = 1$

**What is the solution of the equation?**

33. (1 point)  
 $6x - 3 = 5x - 5$

**What is the solution of the equation?**

34. (1 point)  
 $-6p + 7 = 3(2p - 3) - 4(-10 + 4p)$

**What is the solution of each equation?**

35. (1 point)  
 $2(h - 8) - h = h - 16$

a. 8	c. infinitely many solutions
b. -8	d. no solution

36. (1 point)

$$3 + 6z = 13 + 6z$$

a.  $-\frac{5}{6}$

c. infinitely many solutions

b.  $2\frac{2}{3}$

d. no solution

**What is the given amount converted to the given units?**

37. (1 point)

144 ft; inches

38. (1 point)

A car is driving at a speed of 45 mi/h. What is the speed of the car in feet per minute?

**What is the solution of the proportion?**

39. (1 point)

$$\frac{x - 8}{5} = \frac{2}{4}$$

**What is the solution of the proportion?**

40. (1 point)

$$\frac{6}{14} = \frac{t}{84}$$

**What are the solutions of the inequality?**

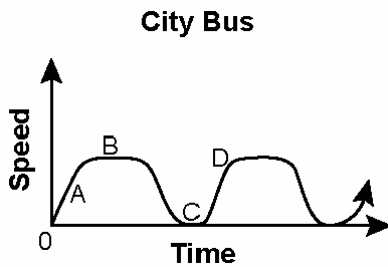
41. (1 point)

$$12x - 3x + 11 > 4x - (17 - 9x)$$



**Algebra 1, Chapter 4 Post Test Review  
Answer Section**

1. ANS:  
[4]



OR similarly shaped graph with appropriately placed labels

- [3] one error in graph shape or labeling  
 [2] two errors in graph shape or labeling  
 [1] three errors in graph shape or labeling

PTS: 2

2. ANS:

The variables are distance and time. The distance from the store increases as she drives, and it stays constant each time she stops for a traffic light or to stop at a customer's house. After her third stop, she starts heading back to the store. The distance from the store decreases as she drives, and it stays constant for one more stop. Finally, she makes it back to the store and the distance is zero again.

PTS: 4

3. ANS:

hjjgh

PTS: 1

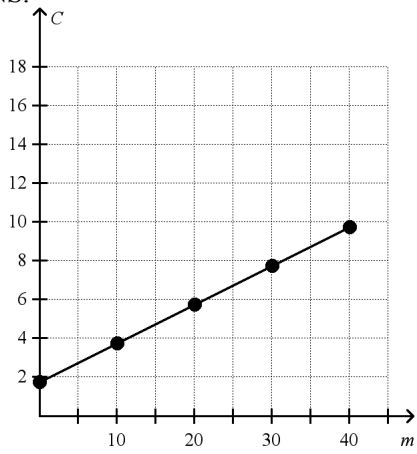
4. ANS:

dfd

PTS: 1

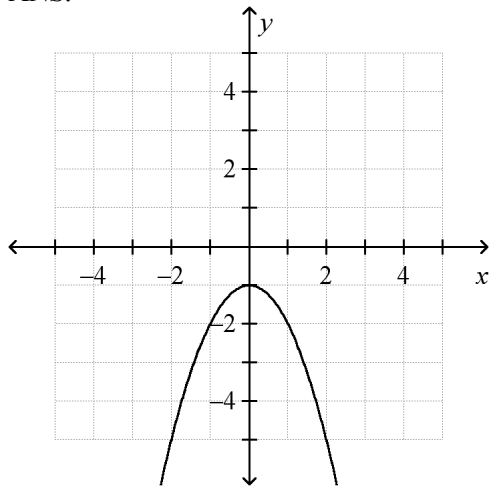


5. ANS:



PTS: 1

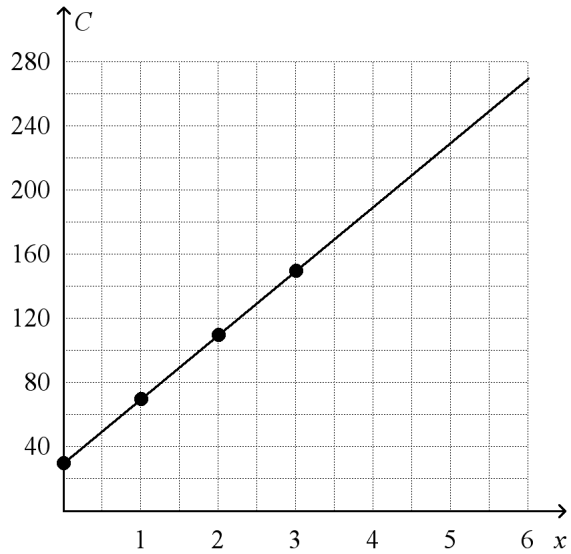
6. ANS:



PTS: 3

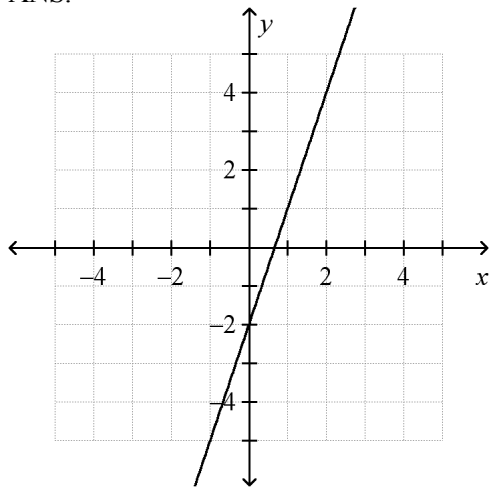
7. ANS:

$x$	$C$
0	30
1	70
2	110
3	150



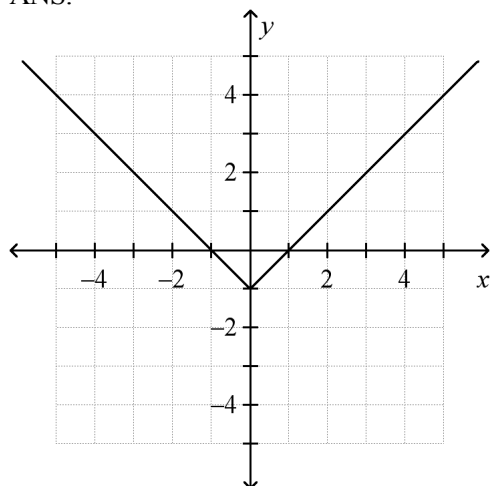
PTS: 3

8. ANS:



PTS: 1

9. ANS:



PTS: 1

10. ANS:

 $C = 2.35p$ ; continuous

PTS: 2

11. ANS:

 $C = 20n$ ; discrete

PTS: 2

12. ANS:

 $C = 20t + 2.75$ 

Independent: Number of tickets

Dependent: Total cost

PTS: 1

13. ANS:

The domain is  $\{-6, 1, 7\}$ .The range is  $\{-12, -6, 0, 10\}$ .

PTS: 2

14. ANS: D

PTS: 1

15. ANS:

D: all real numbers

R: all real numbers

PTS: 1

16. ANS:

 $\{-9, -7, -5, -3\}$ 

PTS: 2

17. ANS:  
f

PTS: 1

18. ANS: B PTS: 1

19. ANS: B PTS: 2

20. ANS: B PTS: 2

21. ANS: D PTS: 2

22. ANS:  
 $d(t) = 2.23t, 15.61 \text{ ft}$

PTS: 2

23. ANS:  
 $f(x) = 3x + 4$

I:x

D:y

PTS: 1

24. ANS:  
9

PTS: 1

25. ANS:  
f

PTS: 1

26. ANS:  
98

PTS: 1

27. ANS:  
198

PTS: 1

28. ANS:  
integers, rational numbers

PTS: 1

29. ANS:  
irrational numbers

PTS: 1

30. ANS:  
 $-16 + 72c$

PTS: 1

31. ANS:  
4

PTS: 1

32. ANS:  
-1

PTS: 1

33. ANS:  
-2

PTS: 1

34. ANS:  
 $p = 6$

PTS: 1

35. ANS: C                      PTS: 1

36. ANS: D                      PTS: 1

37. ANS:  
1728 in.

PTS: 1

38. ANS:  
3,960 ft/min

PTS: 1

39. ANS:  
 $\frac{21}{2}$

PTS: 1

40. ANS:  
 $t = 36$

PTS: 1

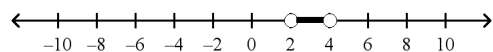
41. ANS:  
 $x < 7$

PTS: 1

42. ANS: D                      PTS: 1

43. ANS: A                      PTS: 1

44. ANS:  
 $2 < x < 4$



PTS: 1

45. ANS: C                   PTS: 1

46. ANS: A                   PTS: 1

47. ANS:  
340

PTS: 1