

1. The side of a square is $3x - 2$. Express the perimeter of the square in terms of x .

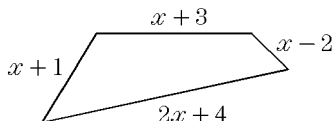
- a) $9x^2 - 6x + 4$ b) $12x - 8$
 c) $12x - 2$ d) $6x - 4$
 e) $9x^2 - 4$

2. The lengths of the sides of a triangle are $2x + 1$, $3x - 2$ and $4x - 5$. Express the perimeter of the triangle in terms of x .

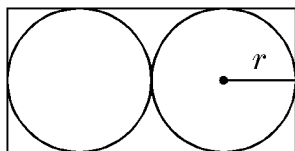
- a) $9x - 6$ b) $9x - 8$ c) $9x^2 - 6$
 d) $9x + 10$ e) $9x^2 + 10$

3. The sides of a quadrilateral are shown below. Express the perimeter in terms of x .

- a) $5x^2 + 6$
 b) $5x + 6$
 c) $2x^2 - 24$
 d) $5x + 10$
 e) $5x - 10$



4. Find the perimeter of the rectangle in terms of r .



- a) $6r$ b) $12r$
 c) $8r + 4$ d) $10r + 4$

5. The table compares the Fahrenheit temperature set on the thermostat to the cost of electricity for a large building. Using this data, determine the cost if the thermostat is set to 80°F ?

- a) \$6350
 b) \$6720
 c) \$7140
 d) \$7560
 e) \$7930

Temp ($^\circ\text{F}$)	Cost (\$)
65	14,250
68	12,670
71	11,090
74	9,510

6. The prizes awarded at a local golf tournament are shown in the table.

Place	1	2	3	4	5
Prize	\$1200	\$1050	\$900	\$750	\$600

If the pattern continues, what would be the prize for 7th place?

- a) 550 b) 450 c) 400 d) 300

7. Max made a table of what he charges for fixing cars. In the table, t is time (hours) and C is the charge (dollars).

t	C
1	\$45
2	\$65
4	\$105
8	\$185

Which equation can Max use to calculate his charge based on the number of hours?

- a) $C = 45 + 20t$ b) $C = 45 + 25t$
 c) $C = 20 + 25t$ d) $C = 25 + 20t$

8. The cost of the band trip is \$28 per student. The total cost of the trip is $C = 28x$ dollars, where x is the number of students. How much will it cost for 150 students to go on the band trip?

- a) \$4200 b) \$4000 c) \$3600
d) \$3500 e) \$2800

9. The bounce of a certain ball can be measured by the formula

$$h = 3(5 - 0.6b),$$

where h is the height of the bounce in feet and b is the number of bounces. What is the height of the eighth bounce?

- a) 1.2 ft b) 0.8 ft c) 0.6 ft
d) 0.5 ft e) 0.4 ft

10. The expression $V(5 + 4)$ is the same as _____.

- a) $20V$ b) $5V + 4V$ c) $5V - 4V$
d) $90V$ e) $9 \cdot 2$

11. Which expression is equal to $3(5x - 6) - 2(4x + 5)$?

- a) $7x - 1$ b) $9x - 1$
c) $9x - 13$ d) $7x - 28$

12. Simplify: $2 + 4(x + 6)$

- a) $4x + 26$ b) $4x + 8$
c) $6x + 36$ d) $6x + 6$

13. The table below shows the average miles per gallon for American cars.

Year	Miles per Gallon
1960	12.4
1965	12.5
1970	12.0
1975	12.2
1980	13.3
1985	14.6
1990	16.4
1995	16.8
2000	17.1

Based on the data, which conjecture is most valid?

- a) Americans drove faster in the year 2000 than they did in the year 1960.
b) Cars are heavier today than they were in 1960.
c) American cars average more miles per gallon than they did in 1960.
d) Japanese cars get more miles per gallon than American cars.

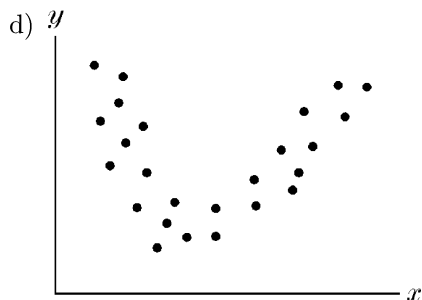
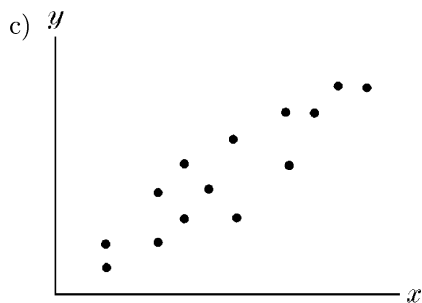
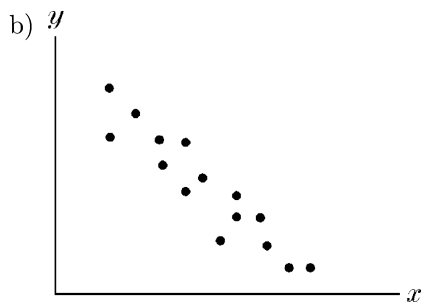
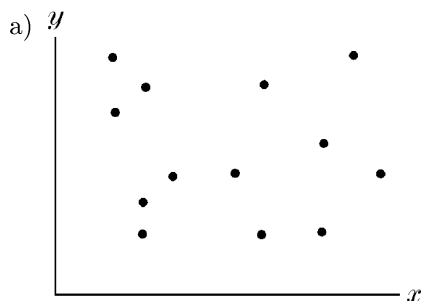
14. The chart below lists the calories a person burns while swimming.

Swim Time (minutes)	Calories burned
20	117
30	195
45	312
60	429

Which statement is not necessarily true, based on the information in the chart?

- a) There is a positive correlation between swim time and calories burned.
- b) If you double your swim time from $\frac{1}{2}$ hour to 1 hour, you double the number of calories burned.
- c) If you do 20 to 60 minutes of swimming, you will burn just under 8 calories each minute.
- d) 5 minutes of swimming is enough to burn almost 40 calories.

15. Which scatterplot below would be the best representation for the relationship between the weight of a car, x , and its miles per gallon, y ?



16.

Figure A

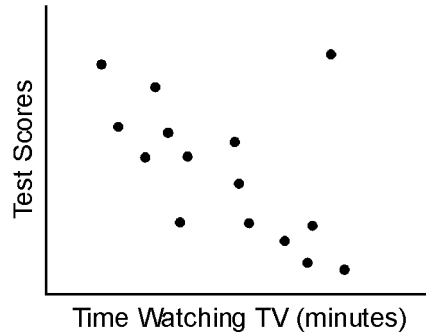
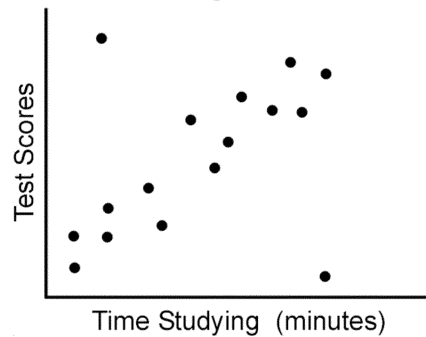


Figure B



Based on the figures, which of the following statements is true?

- a) Increased TV watching also increases test scores.
- b) Increased study time reduces test scores.
- c) As test scores increase so does TV watching.
- d) Test scores increase as study time increases.

17. The table shows the distance from Charlotte, NC, to several cities and the cost of driving to those cities. Name the independent and dependent quantities respectively.

City	Distance	Cost
Boston, MA	841 mi	\$200.92
San Francisco, CA	2742 mi	\$429.04
New York, NY	636 mi	\$176.32
Cheyenne, WY	1624 mi	\$294.88
Houston, TX	1042 mi	\$225.04
Miami, FL	721 mi	\$186.52

- a) Distance, Cost
- b) City, Distance
- c) Cost, City
- d) Distance, City
- e) Cost, Distance

18. Lemon Car Rental charges a flat fee of \$35 plus 65¢ per mile to rent a car. To determine the cost for renting a car from Lemon Car Rental, use the equation $y = 35 + 0.65x$. What are the independent and dependent quantities, respectively?

- a) Cost, Miles
- b) Weeks, Miles
- c) Miles, Weeks
- d) Flat Fee, Cost
- e) Miles, Cost

19. Which of the following relations does *not* represent a function?

- a) $\{(1, 2), (2, 2), (3, 2)\}$
- b) $\{(1, 1), (2, 2), (3, 3)\}$
- c) $\{(1, 1), (1, 2), (1, 3)\}$
- d) $\{(1, 1), (2, 1), (3, 1)\}$

20. Which of the following relations is *not* a function?

a)

x	y
1	2
2	3
3	4
4	5

b)

x	y
2	3
4	5
6	7
8	9

c)

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

d)

x	y
1	4
2	6
1	5
2	6

21. Which of the following relations is *not* a function?

a)

x	y
1	2
2	3
3	4
4	5

b)

x	y
2	3
4	5
6	7
8	9

c)

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

d)

x	y
1	4
2	6
1	5
2	6

22. Gwen scored 11 points less than twice Ivan's score on a recent math quiz. If Gwen's score is represented by g and Ivan's score is represented by v , which equation shows the relationship between their scores?

a) $g = \frac{1}{2}v + 11$

b) $g = \frac{1}{2}v - 11$

c) $g = 2v - 11$

d) $g = 2v + 11$

23. The cost to rent the cabin is \$125 per night, plus a \$50 non-refundable cleaning fee. Which equation would find the total cost C of staying at the cabin for n nights?

a) $C = 125n + 50$

b) $C = 50n + 125$

c) $n = 125C + 50$

d) $125 = 50C + n$

24. A rectangle's width is 2 units less than half its length. If the length of the rectangle is $4k + 4$, what is the perimeter P in terms of k ?

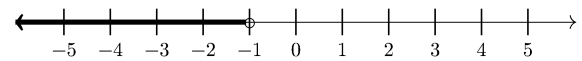
a) $P = 8k + 12$

b) $P = 4k + 8$

c) $P = 6k + 4$

d) $P = 12k + 8$

25. Which inequality is represented by the graph?



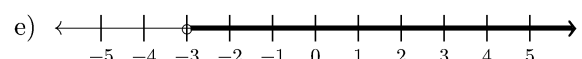
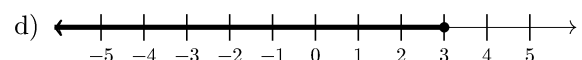
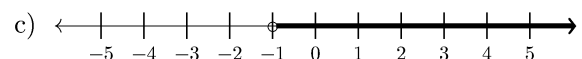
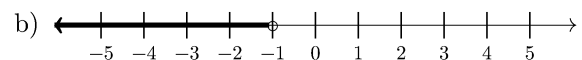
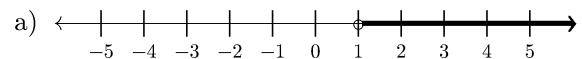
a) $x > -1$

b) $x \leq -1$

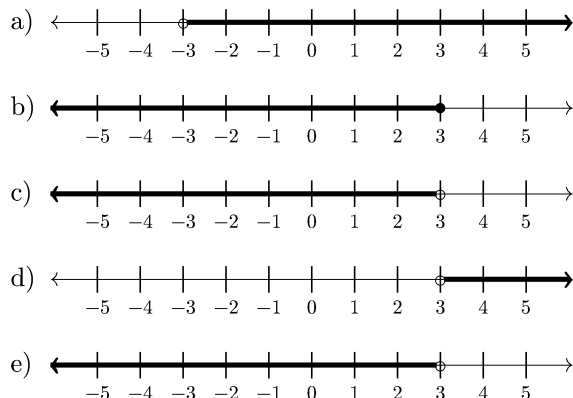
c) $x < -1$

d) $x \geq -1$

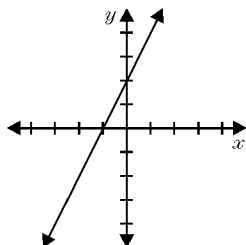
26. Which graph represents the solution to $3x - 2 > 1$?



27. Which graph represents the solution to $4x - 1 > 2x + 5$?



28. Given the graph shown, which of the following is true?



- a) The slope is -2 .
- b) The slope is $\frac{1}{2}$.
- c) The slope is $-\frac{1}{2}$.
- d) The x -intercept is 2 and the y -intercept is -1 .
- e) The x -intercept is -1 and the y -intercept is 2.

29. Which of the following statements is *not* true about the function $y = -2x + 2$?

- a) The graph of the function will intersect at 2 on the y -axis.
- b) The graph of the function slopes down 2 units, and right 1 unit.
- c) If the value of x is less than 1, the value of y becomes negative.
- d) If the value of x is positive, the value of y is also positive.

30. The table shows corresponding values of x and y . Which equation represents these values?

x	2	1	-1	-4	-6
y	-4	-6	-10	-16	-20

- a) $y = x - 6$ b) $y = -2x$ c) $y = -x - 2$
- d) $y = 2x - 8$ e) $y = 2x - 4$

31. Which function corresponds to all of the values in the table?

x	2	1	-1	-4	-6
y	-4	-6	-10	-16	-20

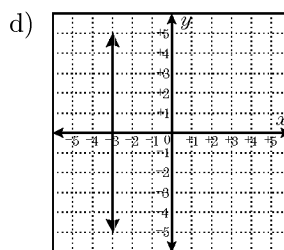
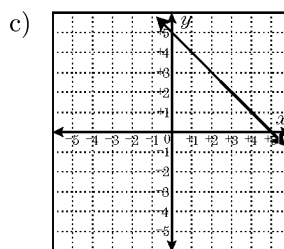
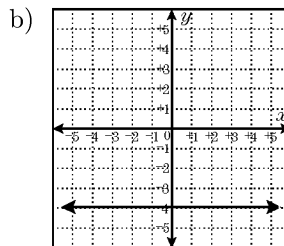
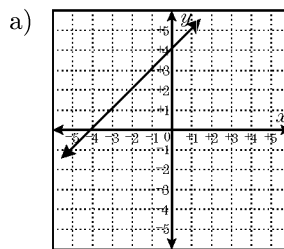
- a) $y = -x + 8$ b) $y = x + 8$
- c) $y = -2x + 8$ d) $y = 2x - 8$
- e) $y = -2x - 8$

32. Which equation corresponds to the table of values below?

x	y
-3	-3
-1	1
2	7
3	9

- a) $y = x$ b) $y = x + 2$ c) $y = 2x + 3$
d) $y = 2x - 3$ e) $y = 3x + 2$

33. Which of the following lines has a *positive* slope?



34. Examine the data in the table.

x	-3	-1	1	4
y	2	8	14	23

What is the slope of the line that contains these data points?

- a) 6 b) $\frac{1}{3}$ c) 3 d) $\frac{1}{6}$

35. Find the slope of the line whose equation is $3x - 5y = 15$.

a) -15 b) -5 c) $-\frac{3}{5}$ d) $\frac{3}{5}$ e) 3

36. A line contains the points $(-2, 5)$ and $(-2, 0)$. What is its slope?

a) -5 b) $-\frac{3}{2}$ c) $-\frac{2}{3}$ d) 0
e) undefined

37. Jimmy joined a CD club. The table shows the total cost of CDs purchased including his membership fee.

CDs	1	2	3	4
Cost	\$29	\$37	\$45	\$53

If the cost of CDs is constant, how much is the membership fee?

a) \$8 b) \$10 c) \$21 d) \$29

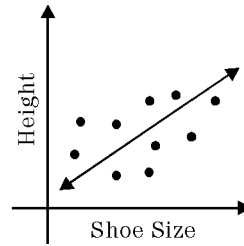
38. To cater a dinner, Anthony charges a flat fee plus an additional charge for each meal he must prepare. The chart below shows Anthony's total fees for catering various dinners.

Number of Meals	Total fee
10	\$120
20	\$190
40	\$330
100	\$750

Based on the table, how much does Anthony charge for each meal?

a) \$5 b) \$7 c) \$10 d) \$12

39. Interpret the slope of ℓ if the value is $\frac{2}{3}$.

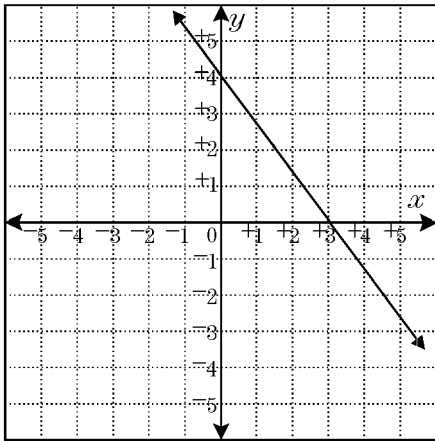


- a) For every increase of 2 inches in height, there is a corresponding increase of 3 shoe sizes.
b) For every increase of 2 shoe sizes, there will be a corresponding decrease of 3 shoe sizes.
c) For every increase of 2 inches in height, there will be a corresponding decrease of 3 shoe sizes.
d) For every decrease of 2 inches in height, there will be a corresponding increase of 3 shoe sizes.

40. Given a line with a slope of -2 , how does the graph of the line differ if the slope is changed to 2 ?

- a) It moves 4 units on the y -axis.
b) It moves 4 units on the x -axis.
c) It changes from downhill to uphill.
d) It changes from uphill to downhill.
e) There is no change in the graph of the line.

41. Given the graph of the line, how will the graph differ if the slope is changed to $\frac{4}{3}$?



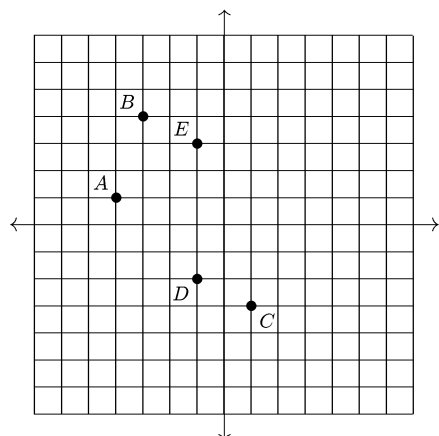
- a) Its steepness increases.
- b) Its steepness decreases.
- c) It changes from uphill to downhill.
- d) It changes from downhill to uphill.
- e) There is no change in the graph of line.
42. Determine the slope of the line $6x + 3y = 6$. As the x -value increases, how would you describe movement along the line?
- a) 1 unit to the right, 2 units down
- b) 1 unit to the left, 2 units down
- c) 2 units to the right, 1 unit down
- d) 2 units to the left, 1 unit down
- e) 2 units to the right, 1 unit up

43. Given a line with a slope of $\frac{2}{5}$, how does the graph of the line differ if the slope is changed to $\frac{4}{5}$?

- a) Its steepness increases.
- b) Its steepness decreases.
- c) It moves $\frac{2}{5}$ unit up on the y -axis.
- d) It moves $\frac{2}{5}$ unit right on the x -axis.
- e) There is no change in the graph of the line.

44. Which of the following is a valid method for graphing $2x + 3y = 6$?
- a) The equation is in correct form, so use $(0, 6)$, and place other points by moving down 2 units and right 3 units.
- b) Transform the equation to $y = -\frac{2}{3}x + 2$, use $(0, 2)$, and place other points by moving down 2 units and right 3 units.
- c) Transform the equation to $y = \frac{2}{3}x + 6$, use $(0, 6)$, and place other points by moving up 2 units and right 3 units.
- d) Transform the equation to $x = -\frac{3}{2}(y - 2)$, use $(0, -2)$, and place other points by moving down 3 units and right 2 units.

45. Graph a line with a slope of $-\frac{3}{4}$ and a x -intercept of 3. Which of the following points lies on the graph?



- a) A b) B c) C d) D e) E

46. The table shows solutions to a linear function. What is the zero of the function?

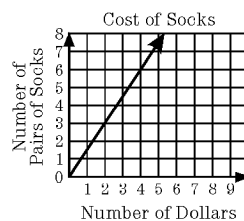
x	y
-1	-12
2	0
0	-8
3	4
4	8

- a) 0 b) 2 c) 4 d) -8

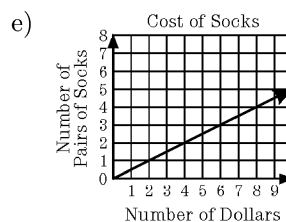
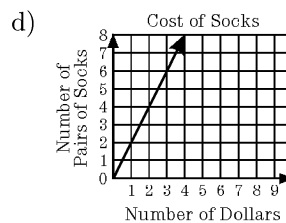
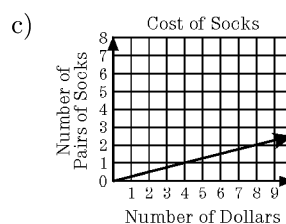
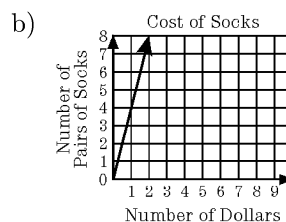
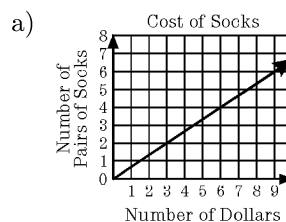
47. Given the line $x + 4y = 8$. Determine where the line crosses the x -axis.

- a) $(-\frac{1}{4}, 0)$ b) $(2, 0)$ c) $(4, 0)$
d) $(5, 0)$ e) $(8, 0)$

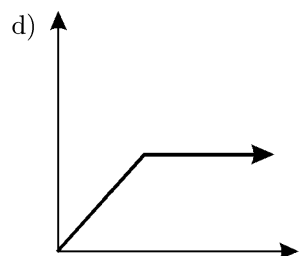
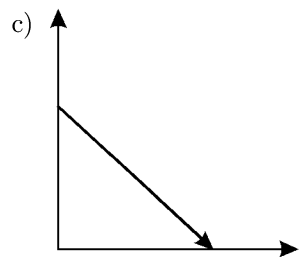
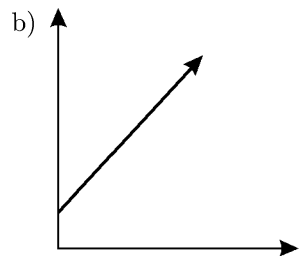
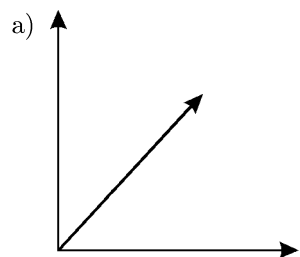
48. The graph shown represents the cost of socks that are sold at the rate of 3 pairs for \$2.00. The equation $S = \frac{3}{2}D$ where S is the number of pairs of socks bought and D is the number of dollars needed to purchase the socks.



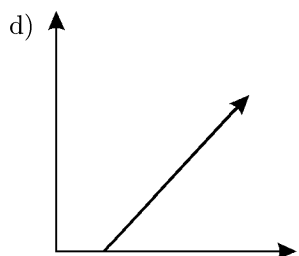
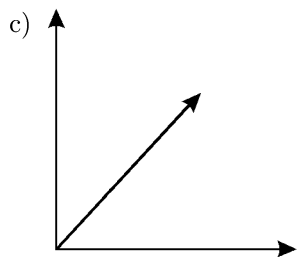
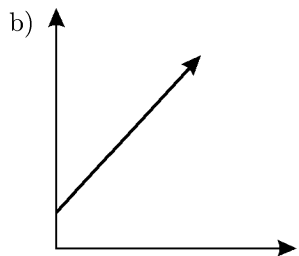
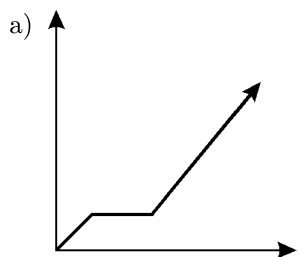
Which of the following represents the cost of socks sold at the rate of 4 pairs for \$2.00?



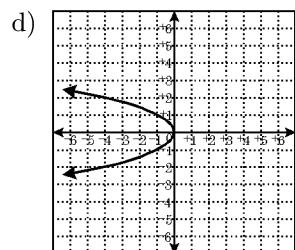
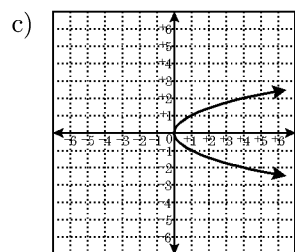
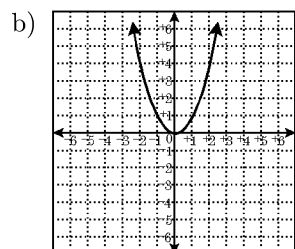
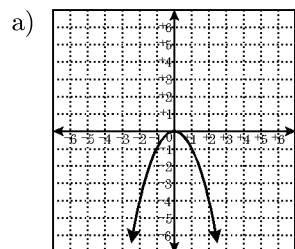
49. Which graph represents a proportional linear function?



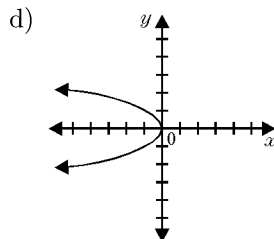
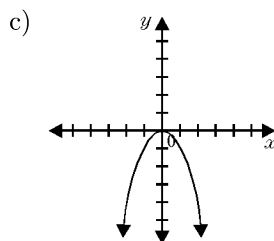
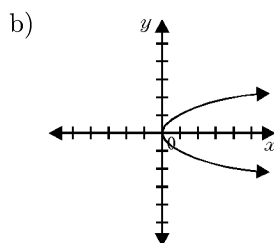
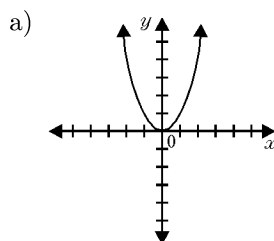
50. Which graph represents a proportional linear function?



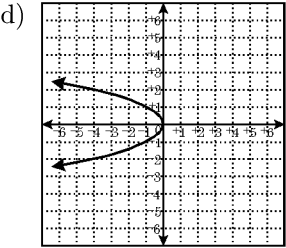
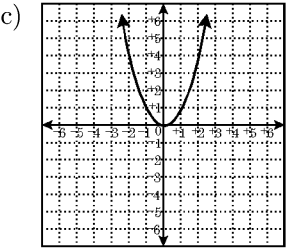
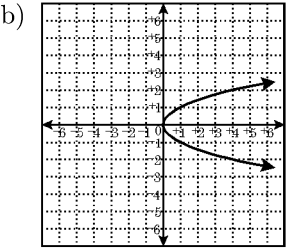
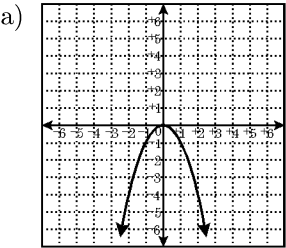
51. Which is the graph of $y = -x^2$?



52. Which is the graph of $y = x^2$?

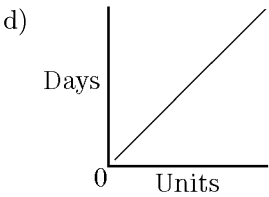
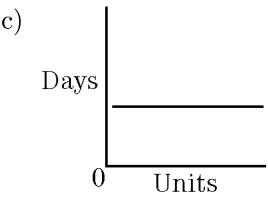
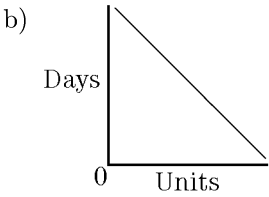
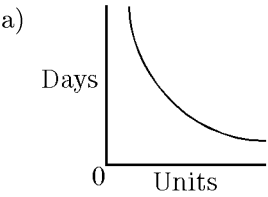


53. Which is the graph of $y = x^2$?

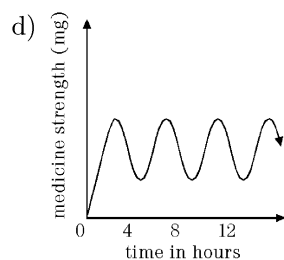
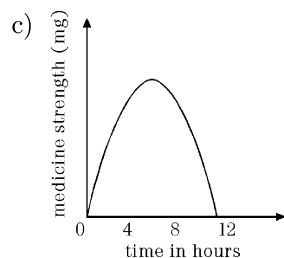
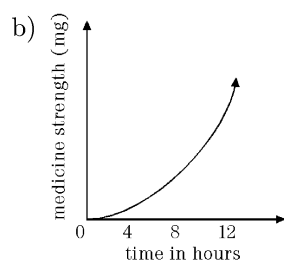
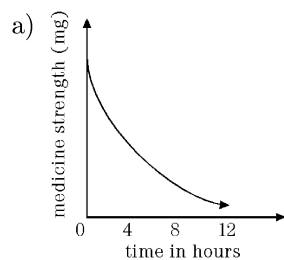


54. Kim had to complete some work at the rate shown. Which of the following could be the graph of this data?

Units to Complete	4	8	12	16	20
Day	1st	2nd	3rd	4th	5th



55. Barney gets to take a coffee break every four hours to boost his energy level. After his coffee break, Barney's energy level declines until his next coffee break. Which of the following graphs *best* represents Barney's energy level over a period of time?



Untitled 12/4/2010

1.
Answer: b
CodePath: EAS.THM.A.3.A.1

2.
Answer: a
CodePath: EAS.THM.A.3.A.3

3.
Answer: b
CodePath: EAS.THM.A.3.A.5

4.
Answer: b
CodePath: EAS.THM.A.3.A.10

5.
Answer: a
CodePath: EAS.THM.A.3.B.3

6.
Answer: d
CodePath: EAS.THM.A.3.B.2

7.
Answer: d
CodePath: EAS.THM.A.3.B.9

8.
Answer: a
CodePath: EAS.THM.A.4.A.2

9.
Answer: c
CodePath: EAS.THM.A.4.A.11

10.
Answer: b
CodePath: EAS.THM.A.4.B.3

11.
Answer: d
CodePath: EAS.THM.A.4.B.7

12.
Answer: a
CodePath: EAS.THM.A.4.B.11

13.
Answer: c
CodePath: EAS.THM.A.2.D.1

14.
Answer: d
CodePath: EAS.THM.A.2.D.4

15.
Answer: b
CodePath: EAS.THM.A.2.D.29

16.
Answer: d
CodePath: EAS.THM.A.2.D.31

17.
Answer: a
CodePath: EAS.THM.A.1.A.2

18.
Answer: e
CodePath: EAS.THM.A.1.A.6

19.
Answer: c
CodePath: EAS.THM.A.1.B.3

20.
Answer: d
CodePath: EAS.THM.A.1.B.7

21.
Answer: d
CodePath: EAS.THM.A.1.B.7

22.
Answer: c
CodePath: EAS.THM.A.1.C.1

23.
Answer: a
CodePath: EAS.THM.A.1.C.5

24.
Answer: d
CodePath: EAS.THM.A.1.C.9

25.
Answer: c
CodePath: EAS.THM.A.1.D.3

26.
Answer: a
CodePath: EAS.THM.A.1.D.7

27.
Answer: d
CodePath: EAS.THM.A.1.D.9

28.
 Answer: e
 CodePath: EAS.THM.A.1.E.5

29.
 Answer: d
 CodePath: EAS.THM.A.1.E.8

30.
 Answer: d
 CodePath: EAS.THM.A.5.C.3

31.
 Answer: d
 CodePath: EAS.THM.A.5.C.7

32.
 Answer: c
 CodePath: EAS.THM.A.5.C.5

33.
 Answer: a
 CodePath: EAS.THM.A.6.A.1

34.
 Answer: c
 CodePath: EAS.THM.A.6.A.5

35.
 Answer: d
 CodePath: EAS.THM.A.6.A.10

36.
 Answer: e
 CodePath: EAS.THM.A.6.A.16

37.
 Answer: c
 CodePath: EAS.THM.A.6.B.1

38.
 Answer: b
 CodePath: EAS.THM.A.6.B.3

39.
 Answer: a
 CodePath: EAS.THM.A.6.B.7

40.
 Answer: c
 CodePath: EAS.THM.A.6.C.4

41.
 Answer: d
 CodePath: EAS.THM.A.6.C.8

42.
 Answer: a
 CodePath: EAS.THM.A.6.C.2

43.
 Answer: a
 CodePath: EAS.THM.A.6.C.6

44.
 Answer: b
 CodePath: EAS.THM.A.6.D.2

45.
 Answer: e
 CodePath: EAS.THM.A.6.D.7

46.
 Answer: b
 CodePath: EAS.THM.A.6.E.11

47.
 Answer: e
 CodePath: EAS.THM.A.6.E.17

48.
 Answer: d
 CodePath: EAS.THM.A.6.F.11

49.
 Answer: a
 CodePath: EAS.THM.A.6.G.4

50.
 Answer: c
 CodePath: EAS.THM.A.6.G.3

51.
 Answer: a
 CodePath: EAS.THM.A.2.A.5

52.
 Answer: a
 CodePath: EAS.THM.A.2.A.3

53.
 Answer: c
 CodePath: EAS.THM.A.2.A.6

54.
 Answer: d
 CodePath: EAS.THM.A.2.C.5

55.
 Answer: d
 CodePath: EAS.THM.A.2.C.8