Math 0310 Basic Concepts for Business Math & Statistics Final Exam Review

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

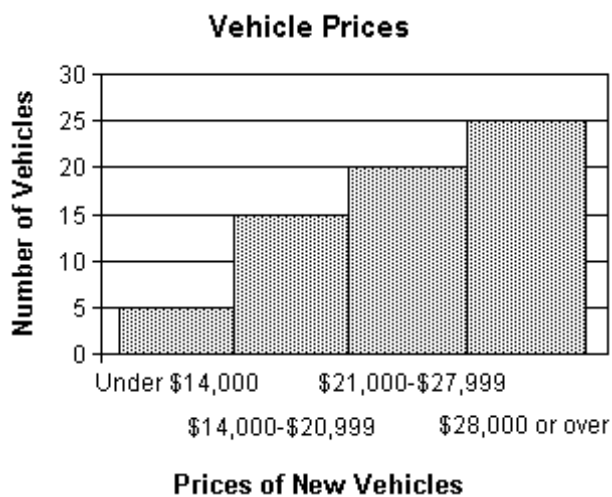Divide.

1) $\dfrac{70x^5 + 56x^2 - 21x}{7x}$

1) _____

Find the matrix product when possible.

2) $\begin{bmatrix} -2 & 3 \\ 3 & 2 \end{bmatrix} \begin{bmatrix} -2 & 0 \\ -1 & 1 \end{bmatrix}$

2) _____

A new car dealership has taken an inventory of the vehicles it has in stock. Below is a histogram indicating the number of vehicles in stock in certain price ranges. Use the histogram to answer the question.

Vehicle Prices

Prices of New Vehicles

3) How many vehicles in stock are priced between $14,000 and $20,999?

3) _____

Write the phrase as an algebraic expression. Let x represent the unknown number.

4) Seven times a number decreased by 23

4) _____

Evaluate the expression when x = 2, y = 1, and z = 4.

5) $5z^2$

5) _____

Perform the operation or operations when possible.

6) $\begin{bmatrix} -1 & 0 \\ 3 & 2 \end{bmatrix} - \begin{bmatrix} -1 & 3 \\ 3 & 1 \end{bmatrix}$

6) _____

Write an equation of the line through the given point with the given slope. Write the equation in slope-intercept form.

7) $(5, 5)$; $m = -3$

7) _____

Perform the indicated operation and simplify.

8) $\dfrac{4}{7} \cdot \dfrac{35}{48}$

8) _____

Perform the indicated operation.

9) $28 + 0.49 + 8.9$

9) _____

10) $(5y^5 - 6y^2 - 5) + (7y^5 + 9y^2 + 5)$

10) _____

Find the probability of the event.

11) A standard deck of cards contains 52 cards. These cards consist of four suits (hearts, spades, clubs, and diamonds) of each of the following: 2, 3, 4, 5, 6, 7, 8, 9, 10, jack, queen, king, and ace. If a single card is drawn from a standard deck, find the probability of selecting a 3.

11) _____

Determine whether the relation defines y as a function of x. Give the domain.

12) $y = \dfrac{-1}{x + 10}$

12) _____

Find the absolute value of the number.

13) $|-10|$

13) _____

Solve.

14) A restaurant offers 8 entrees and 6 desserts. In how many ways can a person order a two-course meal?

14) _____

15) A shoe store carried one brand of shoe in 3 styles, 6 sizes, and 4 colors. How many types of shoes were available for this one brand?
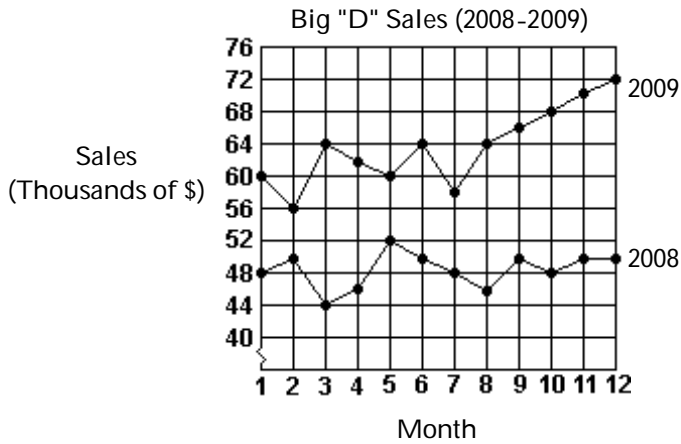
15) _____

Solve the system of equations by the substitution method.

16) $\begin{cases} 3x - 2y = -17 \\ y = x + 6 \end{cases}$

16) _____

Use the graph to answer the question.

Big "D" Sales (2008-2009)

Sales
(Thousands of $)

Month

17) What was the increase in sales between month 5 and month 6 of 2009?   17) _____

Draw a tree diagram for the experiment. Then use the diagram to find the number of possible outcomes.
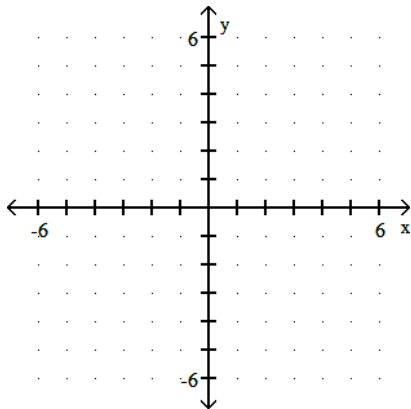
18) Choose a number (1, 2, 3) and then a vowel (a,e,i,o,u).   18) _____

Graph the exponential function.

19) $y = 2^x$ 19) _____

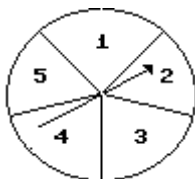

Solve the equation.

20) $3(2n - 4) = 5(n + 4)$ 20) _____

Solve the problem.

21) The spinner shown is spun once. Find the probability that the spinner does not stop on 2 or 4.   21) _____

22) On a biology test, a student got 25 questions correct but did not pass. On a second attempt,   22) _____
the student got 36 questions correct. What was the percent of increase?

23) Use the graph of data items to find the following: 23) _____
a. mean (Round to the nearest tenth, if necessary.)
b. median
c. mode
d. range
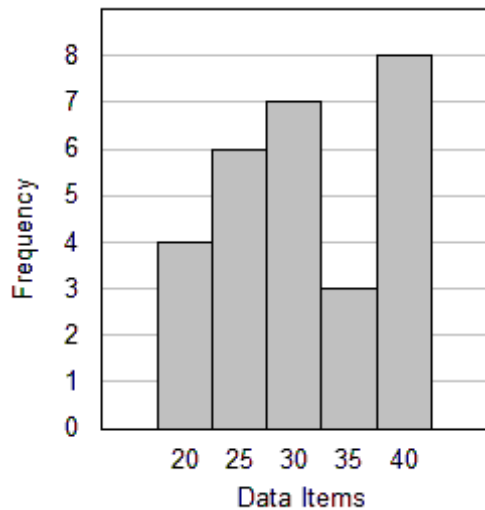
24) Use the frequency distribution table to find the following: 24) _____
a. mean (Round to the nearest tenth, if necessary.)
b. median
c. mode
d. range

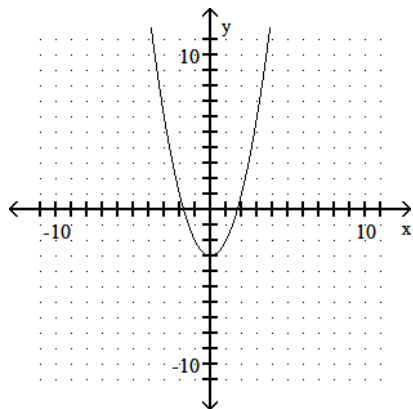| Data Item	Frequency
90	2
91	3
92	1
93	7
94	7

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Match the quadratic function with its graph.

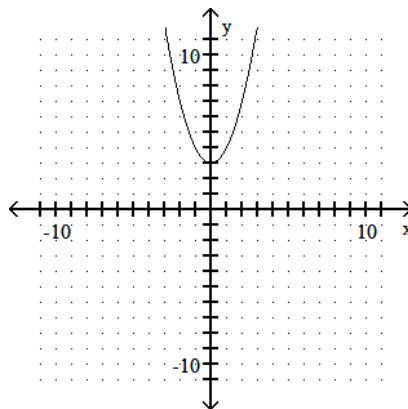25) $f(x) = -x^2 + 3$ 25) _____

A)
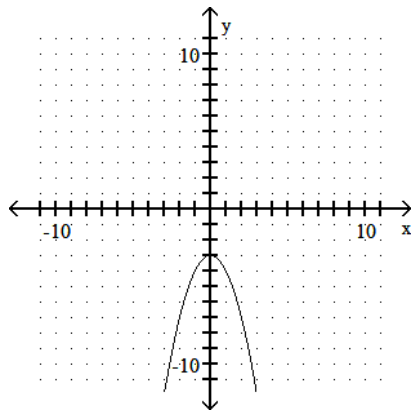

B)

C)

D)

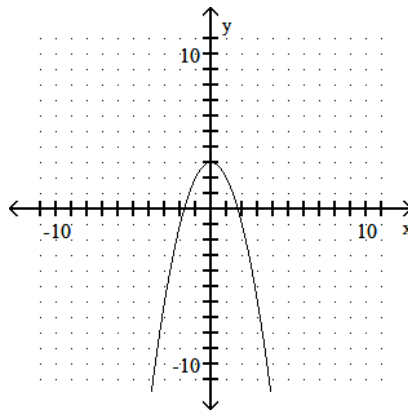SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Multiply.

26) $(x - 5)(-3x + 7)$ 26) _____

27) $2x^8(-5x^5)$ 27) _____

28) $(9z + 1)^2$ 28) _____

29) $7x^2(4x^2 - 5x - 6)$ 29) _____

Find the union.
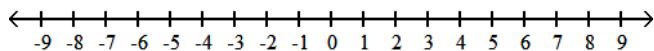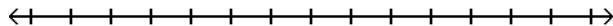
30) $\{3, 5, 7, 13\} \cup \{0, 3, 8, 13\}$ 30) _____

Solve the inequality. Graph the solution set and write it in interval notation.

31) x + 3 > 7x - 3

<div align="right">31) _____</div>

32) 9 < 3x ≤ 18

<div align="right">32) _____</div>

Evaluate the expression for the given replacement values.

33) x + yz   x = 2, y = -5, z = -6

<div align="right">33) _____</div>

List the elements in the set .

Let U = {q, r, s, t, u, v, w, x, y, z}

   A = {q, s, u, w, y}

   B = {q, s, y, z}

   C = {v, w, x, y, z}.

34) A ∩ B'

<div align="right">34) _____</div>

Identify the property illustrated by the expression.

35) $3 \cdot 7 = 7 \cdot 3$

<div align="right">35) _____</div>
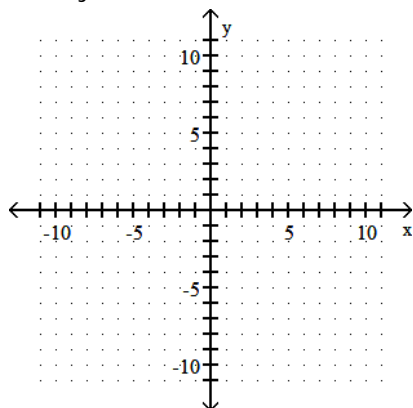
Multiply or divide as indicated.

36) $\left(-\dfrac{36}{72}\right) \cdot \left(\dfrac{8}{9}\right)$

<div align="right">36) _____</div>

Graph the inequality.

37) 2x + 5y > -10

<div align="right">37) _____</div>

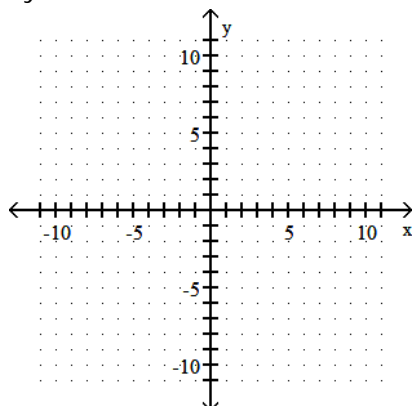Solve the simple interest problem. Round to the nearest cent.

38) If Stephen borrows $710 for 3 years at a simple interest rate of 3% per year, how much interest will he have to pay for this loan?

38) _____

Graph the linear equation by finding and plotting its intercepts.

39) $9y = 6x - 27$

39) _____

Write the sentence as an equation or inequality. Use x to represent any unknown number.
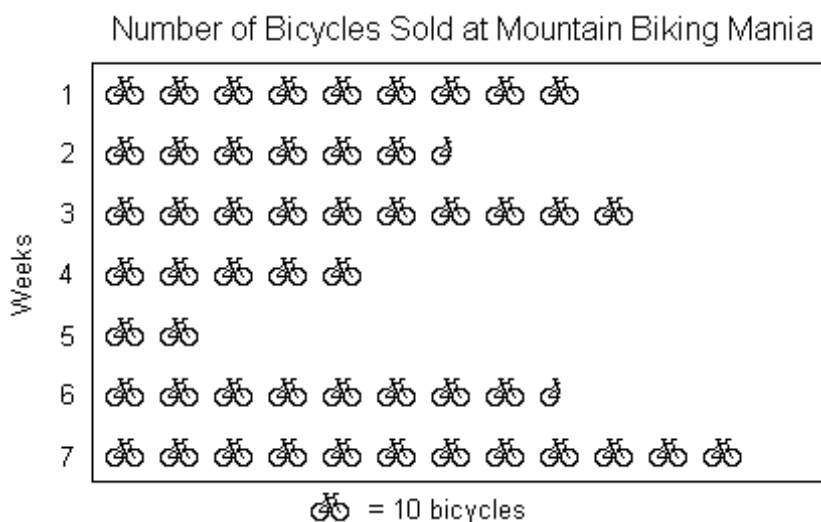
40) The sum of 11 and a number is 29.

40) _____

Solve the system by the substitution method or the addition method.

41) $\begin{cases} 3x + y = 7 \\ 4x + 3y = 1 \end{cases}$

41) _____

The pictograph shows the number of bicycles sold at Mountain Biking Mania for a 7-week period.

42) How many bicycles were sold in week 1?

42) _____

Simplify the expression.

43) $4[-5 + 3(-5 + 7)]$ 43) _____

44) $28 \div 7 \cdot 4 - 6 \cdot 8$ 44) _____

Find the indicated function values.

45) If $h(x) = x^3 - x$, find   45) _____
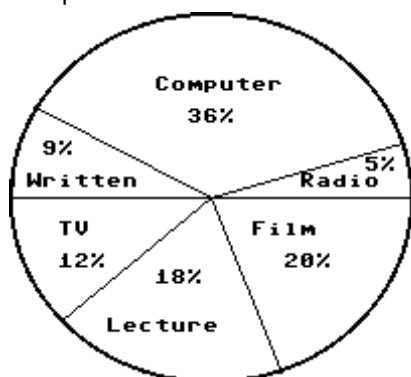   a. $h(-1)$ b. $h(0)$ c. $h(4)$

Find the missing values.

46)   46) _____

Marked Price	Rate of Discount	Discount	Sale Price
$180	30%		

Answer the question.

47) In a school survey, students showed these preferences for instructional materials. Answer   47) _____
the question.

About how many students would you expect to prefer written materials in a school of 700
students?

Find the intersection.

48) $\{e, f, g, h, i\} \cap \{h, i, j, k, l\}$ 48) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Decide whether the given number is a solution of the given equation.

49) Is 8 a solution of $3x + 7 = 33$?   49) _____
    A) yes   B) no

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Evaluate.

50) -6^3 50) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Find the median. Round to the nearest tenth when necessary.
    51) The prices of the same computer game sold at several different stores or on online were as follows: 51) _____
        $59.99, $53.99, $48.99, $57.99, $61.99, $51.99, $50.99, $56.99, and $45.99.
          A) $51.99   B) $45.99   C) $53.99   D) $56.99

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

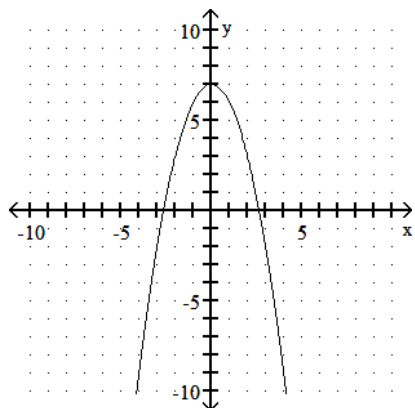List the numbers in set B that belong to the indicated set.
    52) $B = \left\{ 14, \sqrt{5}, -23, 0, \dfrac{0}{8}, 2\pi, \sqrt{9} \right\}$ 52) _____
        Whole numbers

Find the indicated root.
    53) $- \sqrt{\dfrac{1}{16}}$ 53) _____

Decide whether the relation is a function, and give the domain and range.
   54)   54) _____

Add or subtract as indicated.
    55) $-8.2 + (-16.5)$ 55) _____

Find the slope of the line that passes through the given points.
    56) $(-5, -12)$ and $(3, 1)$ 56) _____

The graph below shows the number of students enrolled in various courses at State University in spring 2000. Each bar represents a different course, and the height of the bar represents the number of students enrolled. Use the graph to answer the question.
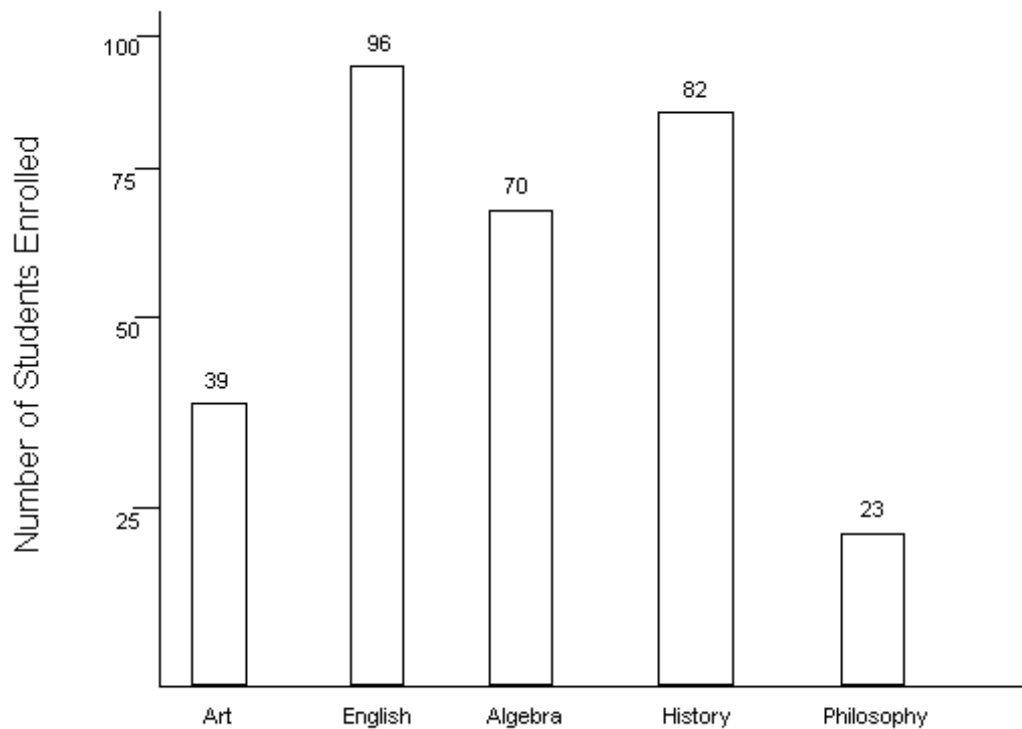
57) For which courses was enrollment greater than 80?   57) _____

Find the mean. Round to one decimal place when necessary.
    58) The numbers of miles John ran over the last six days were as follows: 6, 4, 10, 6, 11, 9   58) _____

A standard deck of cards contains 52 cards. There are 13 cards of each of the four suits: clubs, diamonds, hearts, and spades. In each suit, there is one card of each of the following: 2, 3, 4, 5, 6, 7, 8, 9, 10, jack, queen, king, and ace.
    59) One card is dealt from a standard deck. Find the probability of being dealt a 7.   59) _____

Subtract.
    60) $(2x^2 + 6x - 5) + (5x^2 - 11x + 12)$ 60) _____

1) $10x^4 + 8x - 3$

2)
$$\begin{bmatrix} 1 & 3 \\ -8 & 2 \end{bmatrix}$$

3) 15 vehicles

4) $7x - 23$

5) 80

6)
$$\begin{bmatrix} 0 & -3 \\ 0 & 1 \end{bmatrix}$$

7) $y = -3x + 20$

8) $\dfrac{5}{12}$

9) 37.39

10) $12y^5 + 3y^2$

11) $\dfrac{1}{13}$

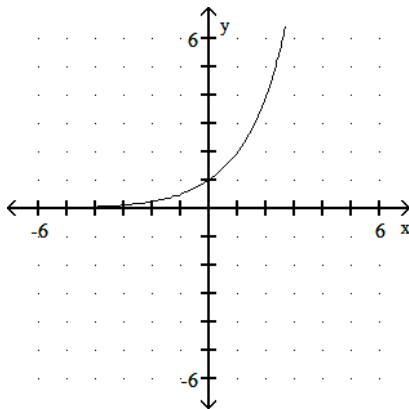12) Function; domain: $(-\infty, -10) \cup (-10, \infty)$

13) 10

14) 48

15) 72

16) $(-5, 1)$

17) $4000

18) 15 outcomes

19)

20) 32

21) $\dfrac{3}{5}$

22) 44%

23) a. 30.9
   b. 30
   c. 40
   d. 20

24) a. 92.7
    b. 93
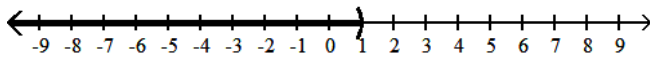   c. 93 and 94
    d. 4

25) D

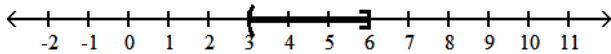26) $-3x^2 + 22x - 35$

27) $-10x^{13}$

28) $81z^2 + 18z + 1$

29) $28x^4 - 35x^3 - 42x^2$
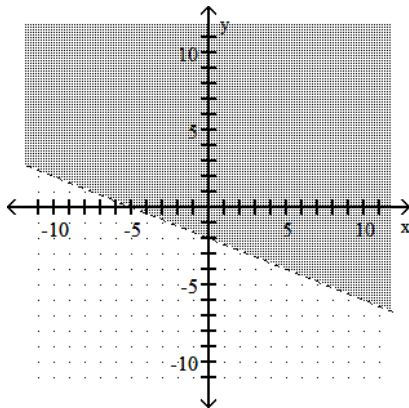
30) {0, 3, 5, 7, 8, 13}

31) $(\infty, 1)$

32) (3, 6]

33) 32

34) {u, w}

35) commutative property of multiplication

36) $-\dfrac{4}{9}$

37)
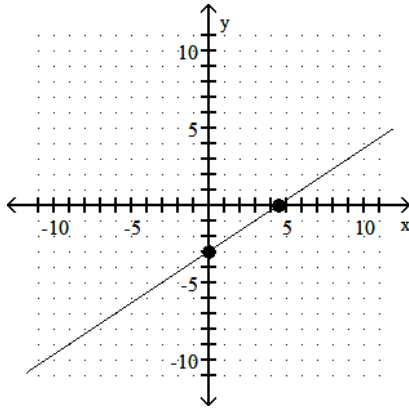

38) $63.90

39)

40) 11 + x = 29

41) (4, –5)

42) 90 bicycles

43) 4

44) –32

45) a. 0

    b. 0

    c. 60

46) $54.00, $126.00

47) About 63 students

48) {h, i}

49) B

50) –216

51) C

52) $14, 0, \dfrac{0}{8}, \sqrt{9}$

53) $-\dfrac{1}{4}$

54) Function; domain: $(-\infty, \infty)$; range: $(-\infty, 7]$

55) –24.7

56) $\dfrac{13}{8}$

57) English and History

58) 7.7 miles

59) $\dfrac{1}{13}$

60) $7x^2 - 5x + 7$