Course Review for MATH 1010   Name_____

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

Decide whether the argument is an example of inductive or deductive reasoning.

1) His last four at bats were strikeouts. Therefore, the next will be a strikeout.   1) _____

    A) Inductive   B) Deductive

2) Fresh fruit costs more in winter. This is January. Therefore these fresh strawberries will cost more.   2) _____

    A) Deductive   B) Inductive

Determine the most probable next term in the sequence.

3) 486, 162, 54, 18, 6   3) _____

    A) 1   B) 3   C) 2   D) $\dfrac{2}{3}$

4) $\dfrac{3}{2}, \dfrac{5}{4}, \dfrac{7}{6}, \dfrac{9}{8}, \dfrac{11}{10}$ 4) _____

    A) $\dfrac{12}{11}$ B) $\dfrac{13}{12}$ C) $\dfrac{13}{11}$ D) $\dfrac{12}{13}$

Use the method of Gauss to find the sum.

5) $1 + 2 + 3 + \ldots + 375$ 5) _____

    A) 141,376   B) 70,500   C) 35,156.25   D) 70,312.5

Find a pattern and use it to solve the problem.

6) Find the next term: 1, 1, 2, 3, 5, 8, 13   6) _____

    A) 15   B) 18   C) 16   D) 21

Use the method of successive differences to determine the next term in the sequence.

7) 20, 31, 45, 62, 82, . . .   7) _____

    A) 105   B) 102   C) 107   D) 108

Use logic to solve the problem.

8) In India, water lilies grow extremely fast. In one pond, a lily grew so fast that each day it doubled the area it covered. In 28 days it covered the pond. How long would it take 2 such lilies to cover the pond?   8) _____

    A) 14   B) 7   C) 27   D) 28

Use problem solving strategies to solve the problem.

9) The number of dogs and chickens on a farm add up to 12. The number of legs between them is 28. How many dogs and how many chickens are on the farm if there are at least twice as many chickens as dogs?   9) _____

    A) 2 dogs, 10 chickens   B) 3 dogs, 9 chickens

   C) 6 dogs, 6 chickens   D) 4 dogs, 8 chickens

10) What's the easiest way to heat a pan of water for 9 minutes when you have only a 6–minute hour–glass timer and a 21–minute hour–glass timer?

    A) Start both timers. When the 6–min one runs out, turn it over. When it runs out again, start heating the water until the 21–min timer runs out.

    B) Can't be done.

    C) Start both timers. When the 6–min timer runs out, start heating the water. Continue until the 21–min timer runs out.

    D) Start the 6–min timer. When it's halfway through start heating the water. When it runs out turn it over and heat the water until it runs out again.

10) _____

Solve the problem.

11) When 15 gallons of gasoline are put into a car's tank, the indicator goes from $\frac{1}{8}$ of a tank to $\frac{3}{4}$. What is the total capacity of the gasoline tank?

    A) 30 gallons   B) 24 gallons   C) 18 gallons   D) 36 gallons

11) _____

Determine the number of figures (of any size) in the design.

12) Squares (of any size)

12) _____
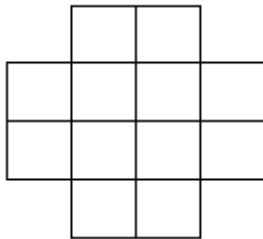
    A) 12   B) 17   C) 13   D) 18

List the elements in the set.

13) {x | x is an integer between –2 and 2}

    A) {–2, –1, 0, 1}   B) {–2, –1, 0, 1, 2}   C) {–1, 0, 1, 2}   D) {–1, 0, 1}

13) _____

Write the set in set-builder notation.

14) {2, 4, 8, 16, 32, ...}

    A) {x | x is a positive multiple of 2}

    B) {x | x is an integer power of 2}

    C) {x | x is a positive integer power of 2}

    D) {x | x is a positive multiple of 4}

14) _____

Find n(A) for the set.

15) A = {3, 3, 4, 4, ..., 7, 7}

    A) n(A) = 3   B) n(A) = 10   C) n(A) = 6   D) n(A) = 5

15) _____

Determine whether the statement is true or false.

Let A = {1, 3, 5, 7}
    B = {5, 6, 7, 8}
    C = {5, 8}
    D = {2, 5, 8}
    U = {1, 2, 3, 4, 5, 6, 7, 8}

16) $\varnothing \subseteq A$ 16) _____
    A) True   B) False

17) $D \subseteq B$ 17) _____
    A) True   B) False

Find the number of subsets of the set.

18) {math, English, history, science, art}   18) _____
    A) 28   B) 32   C) 16   D) 24

Let U = {1, 2, 4, 5, a, b, c, d, e}. Find the complement of the set.

19) S = {1, 5, e, d, a}   19) _____
    A) {1, 2, 4, b, c}   B) {2, 3, 4, b, c}   C) {2, 3, 4, a, b, c}   D) {2, 4, b, c}

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}.

20) $B \cap C$ 20) _____
    A) {y, z}   B) {w, y, z}
    C) {y}   D) {q, s, v, w, x, y, z}

21) $C' \cup A'$ 21) _____
    A) {q, s, u, v, w, x, y, z}   B) {w, y}
    C) {s, t}   D) {q, r, s, t, u, v, x, z}

22) $A \cap (B \cup C)$ 22) _____
    A) {q, s, u, w, y, z}   B) {q, s, w, y}   C) {q, r, w, y, z}   D) {q, y, z}

Let A and B be sets with cardinal numbers, n(A) = a and n(B) = b, respectively. Decide whether the statement is true or false.

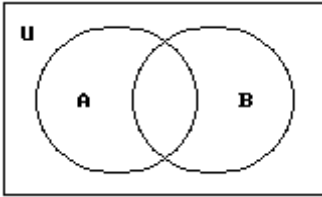23) $n(A \cup B) = n(A) + n(B) - n(A \cap B)$ 23) _____
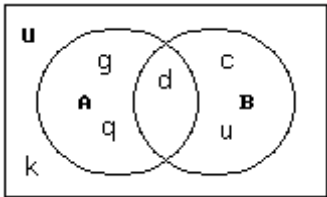   A) True   B) False

For the given sets, construct a Venn diagram and place the elements in the proper region.

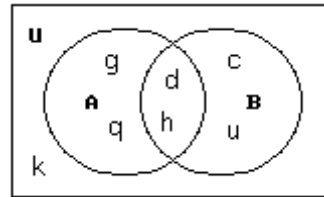24) Let U = {c, d, g, h, k, u, q}
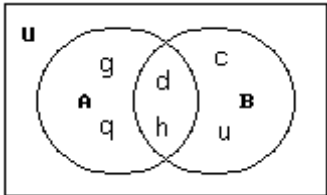
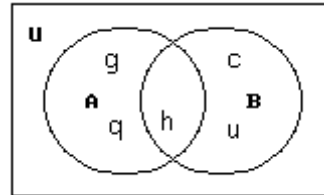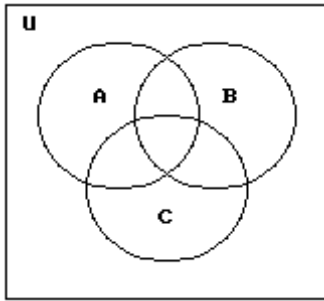   A = {d, h, g, q}

    B = {c, d, h, u}

24) _____

A)

B)

C)

D)

25) Let U = {1, 2, 3, 4, 5, 6, 7, 8}

A = {3, 6, 8}
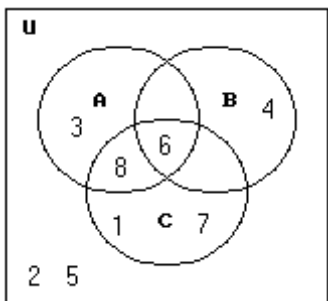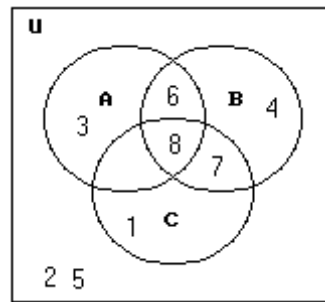
B = {4, 6}

C = {1, 6, 7, 8}

25) _____

A)

B)

C)
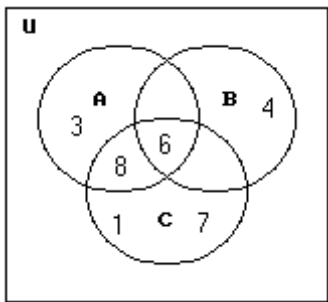
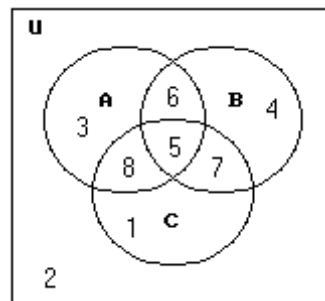D)

Shade the regions representing the set.

26) A' ∩ B'
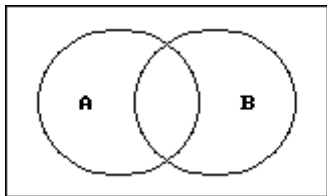
A)
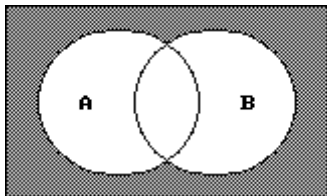
B)
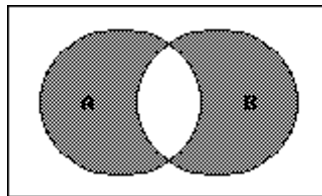
C)
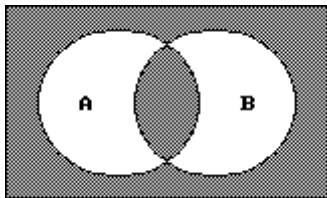
D)
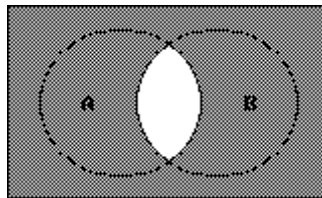
Write a description of the shaded region using the symbols A, B, C, ∪, ∩, -, and ′ as needed.

27)
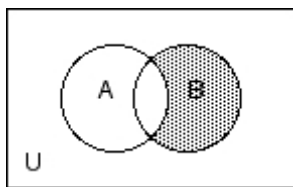
A) B – A′   B) A – B   C) A ∩ B′   D) B ∩ A′

Write a negation for the statement.

28) Some athletes are musicians.
   A) Some athletes are not musicians.   B) Not all athletes are musicians.
   C) No athlete is a musician.   D) All athletes are musicians.

29) Everyone is asleep.
   A) Nobody is asleep.   B) Everyone is awake.
   C) Nobody is awake.   D) Not everyone is asleep.

Convert the symbolic compound statement into words.

30) p represents the statement "It's raining in Chicago."
   q represents the statement "It's windy in Boston."
   Translate the following compound statement into words:

   p ∨ q

   A) It's not the case that it's raining in Chicago and windy in Boston.
   B) It's raining in Chicago or it's windy in Boston.
   C) If it's raining in Chicago, it's not windy in Boston.
   D) It's raining in Chicago and it's windy in Boston.

Let p represent the statement, "Jim plays football", and let q represent the statement "Michael plays basketball". Convert the compound statement into symbols.

31) Jim does not play football and Michael does not play basketball.   31) _____

     A) ~p ∧ ~q   B) ~(p ∧ q)   C) ~p ∨ ~q   D) ~p ∧ q

Let p represent a true statement and let q represent a false statement. Find the truth value of the given compound statement.

32) p ∧ q   32) _____

     A) True   B) False

33) ~(p ∨ ~q)   33) _____

     A) False   B) True

Construct a truth table for the statement.

34) ~r ∧ ~p   34) _____

A)

r	p	(~r ∧ ~p)
T	T	F
T	F	F
F	T	F
F	F	F

B)

r	p	(~r ∧ ~p)
T	T	F
T	F	F
F	T	F
F	F	T

C)

r	p	(~r ∧ ~p)
T	T	F
T	F	T
F	T	T
F	F	T

D)

r	p	(~r ∧ ~p)
T	T	T
T	F	F
F	T	F
F	F	T

35) ~s ∨ (~p ∨ s)   35) _____

A)

s	p	~s ∨ (~p ∨ s)
T	T	T
T	F	F
F	T	T
F	F	T

B)

s	p	~s ∨ (~p ∨ s)
T	T	T
T	F	T
F	T	T
F	F	T

C)

s	p	~s ∨ (~p ∨ s)
T	T	F
T	F	T
F	T	T
F	F	T

D)

s	p	~s ∨ (~p ∨ s)
T	T	F
T	F	F
F	T	T
F	F	T

Use De Morgan's laws to write the negation of the statement.

36) A day late and a dollar short.   36) _____

     A) Not a day late or not a dollar short.   B) Not a day late and not a dollar short.
     C) Not a day late and a dollar short.   D) A day late or not a dollar short.

37) Cats are lazy or dogs aren't friendly.   37) _____

     A) Cats are lazy and dogs are friendly.   B) Cats aren't lazy or dogs are friendly.
     C) Cats aren't lazy and dogs are friendly.   D) Cats aren't lazy or dogs aren't friendly.

38) It is Saturday and it is not raining.   38) _____

     A) It is not Saturday or it is not raining.   B) It is Saturday and it is raining.
     C) It is not Saturday or it is raining.   D) It is not Saturday and it is raining.

Rewrite the statement using the _if...then_ connective. Rearrange the wording or words as necessary.

39) All chocolate is good.

    A) If it isn't chocolate, then it isn't good.   B) Chocolate is good.

    C) If it's good, then it's got to be chocolate.   D) If it's chocolate, then it's good.

40) I'll leave when he arrives.

    A) If he arrives, then I'll leave.   B) I'll leave when he arrives.

    C) If I leave, then he will leave.   D) If I will leave, then he'll arrive.

Construct a truth table for the statement.

41) $p \rightarrow \sim q$

A)
p	q	$p \rightarrow \sim q$
T	T	T
T	F	T
F	T	F
F	F	F

B)
p	q	$p \rightarrow \sim q$
T	T	F
T	F	T
F	T	T
F	F	T

C)
p	q	$p \rightarrow \sim q$
T	T	F
T	F	F
F	T	T
F	F	T

D)
p	q	$p \rightarrow \sim q$
T	T	T
T	F	F
F	T	T
F	F	T

Given p is true, q is true, and r is false, find the truth value of the statement.

42) $\sim q \rightarrow (p \vee r)$

    A) False   B) True

Write the compound statement in symbols.

Let r = "The food is good."

  p = "I eat too much."

  q = "I'll exercise."

43) The food is good and if I eat too much, then I'll exercise.

    A) $(r \vee p) \rightarrow q$ B) $(r \wedge p) \rightarrow q$ C) $(r \rightarrow p) \vee q$ D) $r \wedge (p \rightarrow q)$

Write the negation of the conditional. Use the fact that the negation of $p \rightarrow q$ is $p \wedge \sim q$.

44) If you give your hat to the doorman, he will give you a dirty look.

    A) You do not give your hat to the doorman and he will give you a dirty look.

    B) You give your hat to the doorman and he will not give you a dirty look.

    C) If you give your hat to the doorman he will not give you a dirty look.

    D) You do not give your hat to the doorman and he will not give you a dirty look.

45) If you can't take the heat, stay out of the kitchen.

    A) You can take the heat but stay out of the kitchen.

    B) You can take the heat and stay out of the kitchen.

    C) You can't take the heat and do not stay out of the kitchen.

    D) You can take the heat and do not stay of of the kitchen.

Write the converse, inverse, or contrapositive of the statement as requested.

46) If I were young, I would be happy.

  Converse

    A) If I were not happy, I would not be young.

    B) If I were not young, I would not be happy.

    C) If I were young, I would not be happy.

    D) If I were happy, I would be young.

47) All cats catch birds.   47) _____

    Inverse
      A) If it's not a cat, it doesn't catch birds.   B) If it catches birds, it's a cat.
      C) If it doesn't catch birds, it's not a cat.   D) Not all cats catch birds.

48) Love is blind.   48) _____

    Contrapositive
      A) If it is not blind, then it is not love.   B) If it is not love, it is not blind.
      C) If it is blind then it is not love.   D) If it is blind then it is love.

Use an Euler diagram to determine whether the argument is valid or invalid.

49) All businessmen wear suits.   49) _____
    <u>Aaron wears a suit.</u>
    Aaron is a businessman.
      A) Valid   B) Invalid

50) All students who study get better grades.   50) _____
    <u>Roger is a student who studies.</u>
    Roger will get better grades.
      A) Valid   B) Invalid

Using the 36 possibilities found in the product table for rolling two dice, list and count the outcomes for which the sum (for both dice) is the following.

51) Equal to 8   51) _____
      A) (2,6), (3,5); 2   B) (2,6), (3,5), (4,4), (5,3), (6,2); 5
      C) (2,6), (3,5), (4,4), (4,4), (5,3), (6,2); 6   D) (2,6), (3,5), (4,4); 3

Given a group of students: G = {Allen, Brenda, Chad, Dorothy, Eric} or G = {A, B, C, D, E}, list and count the different ways of choosing the following officers or representatives for student congress. Assume that no one can hold more than one office.

52) A president, a secretary, and a treasurer, if the president must be a woman and the other two must   52) _____
    be men
      A) BAC, BAE, BCE, DAC, DAE, DCE, BCA, BEA, BEC, DCA, DEA, DEC; 12
      B) BAC, BAE, DAC, DAE; 4
      C) ABD, CBD, EBD; 3
      D) BAC, BAE, BCE, DAC, DAE, DCE; 6

53) Three representatives, if two must be female and one must be male   53) _____
      A) BDA, BDC; 2   B) BDA, BDC, BDE; 3
      C) BDA, BDC, BDE, BAD, BCD, BED;6   D) BDA, BDC, BDE, DBA, DBC; 5

Solve the problem.

54) A sports shop sold tennis rackets in 3 different weights, 3 types of string, and 4 grip sizes. How   54) _____
    many different rackets could be sold?
      A) 36 rackets   B) 27 rackets   C) 10 rackets   D) 24 rackets

55) A musician plans to perform 5 selections for a concert. If he can choose from 7 different selections,   55) _____
    how many ways can he arrange his program?
      A) 35   B) 2520   C) 16,807   D) 21

56) How many different 4–letter radio–station call letters can be made if the first letter must be K or W, repeats are allowed, but the call letters cannot end in an O?

    A) 456,976   B) 16,900   C) 33,800   D) 35,152

57) How many ways can a president, vice–president, and secretary be chosen from a club with 12 members?

    A) 220   B) 6   C) 36   D) 1320

58) There are 5 women running in a race. How many different ways could first, second, and third place finishers occur?

    A) 125   B) 10   C) 15   D) 60

59) There are 13 members on a board of directors. If they must form a subcommittee of 5 members, how many different subcommittees are possible?

    A) 120   B) 1287   C) 371,293   D) 154,440

60) A pool of possible jurors consists of 15 men and 10 women. How many different juries consisting of 5 men and 7 women are possible?

    A) 360,360   B) 5,200,300   C) 1,352,078   D) 3123

61) A poker hand consists of 5 cards dealt from an ordinary deck of 52 playing cards. How many different hands are there consisting of four hearts and one spade?

    A) 9295   B) 728   C) 715   D) 13

If two fair dice, one red and one white, are rolled, in how many ways can the result be obtained?

62) The product of the numbers on the two dice is a perfect square.

    A) 7 ways   B) 6 ways   C) 5 ways   D) 8 ways

Find the probability.

63) A bag contains 7 red marbles, 2 blue marbles, and 3 green marbles. What is the probability that a randomly selected marble is blue?

    A) $\frac{1}{4}$ B) $\frac{2}{9}$ C) $\frac{1}{6}$ D) $\frac{7}{12}$

64) Two fair 6–sided dice are rolled. What is the probability the sum of the two numbers on the dice is 4?

    A) 3   B) $\frac{11}{12}$ C) $\frac{2}{3}$ D) $\frac{1}{12}$

65) Three fair coins are tossed. Find the probability of getting exactly two tails.

    A) $\frac{5}{8}$ B) $\frac{1}{2}$ C) $\frac{1}{4}$ D) $\frac{3}{8}$

Solve the problem.

66)
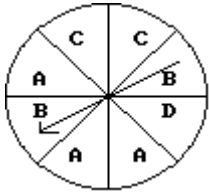
What are the odds in favor of spinning an A on this spinner?

   A) 3:5   B) 6:2   C) 2:6   D) 4:2

67)

| 1 | 2 | 3 | 4 | 5 |
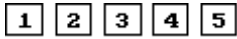
What are the odds in favor of drawing an even number from these cards?

   A) 3:2   B) 5:2   C) 2:3   D) 2:5

68) The table shows the number of college students who prefer a given pizza topping.

toppings	freshman	sophomore	junior	senior
cheese	16	16	21	28
meat	24	28	16	16
veggie	16	16	24	28

Find the empirical probability that a randomly selected student prefers cheese toppings.

   A) 0.325   B) 0.112   C) 0.346   D) 0.337

69) Mr. Larsen's third grade class has 22 students, 12 girls and 10 boys. Two students must be selected at random to be in the fall play. What is the probability that no boys will be chosen? Order is not important.

   A) $\dfrac{1}{6}$ B) $\dfrac{2}{7}$ C) $\dfrac{5}{6}$ D) $\dfrac{6}{11}$

Find the probability.

70) A fair die is rolled. What is the probability of rolling a 3 or a 6?

   A) 2   B) $\dfrac{1}{3}$ C) $\dfrac{1}{6}$ D) $\dfrac{1}{36}$

Find the indicated probability.

71) The age distribution of students at a community college is given below.

Age (years)	Number of students (f)
Under 21	400
21–25	403
26–30	219
31–35	56
Over 35	29
	1107

A student from the community college is selected at random. Find the probability that the student is between 26 and 35 inclusive. Round approximations to three decimal places.

A) 0.051   B) 0.198   C) 275   D) 0.248

71) _____

72) The distribution of B.A. degrees conferred by a local college is listed below, by major.

Major	Frequency
English	2073
Mathematics	2164
Chemistry	318
Physics	856
Liberal Arts	1358
Business	1676
Engineering	868
	9313

What is the probability that a randomly selected degree is in English or Mathematics?

A) 0.424   B) 0.455   C) 0.010   D) 0.517

72) _____

73) A card is drawn at random from a standard 52–card deck. Find the probability that the card is neither an ace nor a heart.

A) $\dfrac{9}{13}$ B) $\dfrac{21}{26}$ C) $\dfrac{35}{52}$ D) $\dfrac{4}{13}$

73) _____

74) A bag contains 5 red marbles, 4 blue marbles, and 1 green marble. If a marble is selected at random, what is the probability that it is not blue?

A) $\dfrac{5}{3}$ B) $\dfrac{2}{5}$ C) $\dfrac{3}{5}$ D) 6

74) _____

Determine whether the events are independent.

75) Two cards are selected at random from a standard deck of 52 cards without replacement. Are the events "ace on the first draw" and "ace on the second draw" independent?

A) No   B) Yes

75) _____

Find the indicated probability.

76) The table below shows the soft drink preferences of people in three age groups.

	cola	root beer	lemon–lime
under 21 years of age	40	25	20
between 21 and 40	35	20	30
over 40 years of age	20	30	35

If one of the 255 subjects is randomly selected, find the probability that the person is over 40 and drinks cola.

A) $\dfrac{4}{51}$　　　　　　　　　　　　B) $\dfrac{4}{17}$

C) $\dfrac{4}{19}$　　　　　　　　　　　　D) None of the above is correct.

76) _____

77) The table below shows the soft drinks preferences of people in three age groups.

	cola	root beer	lemon–lime
under 21 years of age	40	25	20
between 21 and 40	35	20	30
over 40 years of age	20	30	35

If one of the 255 subjects is randomly selected, find the probability that the person is over 40 years of age given that they drink root beer.

A) $\dfrac{6}{17}$　　　　　　　　　　　　B) $\dfrac{5}{17}$

C) $\dfrac{2}{5}$　　　　　　　　　　　　D) None of the above is correct.

77) _____

78) The table below shows the soft drinks preferences of people in three age groups.

	cola	root beer	lemon–lime
under 21 years of age	40	25	20
between 21 and 40	35	20	30
over 40 years of age	20	30	35

If one of the 255 subjects is randomly selected, find the probability that the person drinks root beer given that they are over 40.

A) $\dfrac{2}{5}$　　　　　　　　　　　　B) $\dfrac{6}{17}$

C) $\dfrac{2}{17}$　　　　　　　　　　　　D) None of the above is correct.

78) _____

Find the probability.

79) Find the probability of correctly answering the first 4 questions on a multiple choice test if random guesses are made and each question has 3 possible answers.

A) $\dfrac{3}{4}$　　　　B) $\dfrac{1}{64}$　　　　C) $\dfrac{1}{81}$　　　　D) $\dfrac{4}{3}$

79) _____

80) In one town, 70% of adults have health insurance. What is the probability that 8 adults selected at random from the town all have health insurance?

A) 0.114　　　　B) 0.7　　　　C) 0.058　　　　D) 5.6

80) _____

Use the general multiplication rule to find the indicated probability.

81) You are dealt two cards successively (without replacement) from a shuffled deck of 52 playing cards. Find the probability that both cards are black.

A) $\dfrac{25}{102}$ B) $\dfrac{1}{2652}$ C) $\dfrac{25}{51}$ D) $\dfrac{13}{51}$

81) _____

82) Two marbles are drawn without replacement from a box with 3 white, 2 green, 2 red, and 1 blue marble. Find the probability that both marbles are white.

A) $\dfrac{3}{28}$ B) $\dfrac{3}{8}$ C) $\dfrac{9}{56}$ D) $\dfrac{3}{32}$

82) _____

Find the conditional probability.

83) If three cards are drawn at random without replacement from a standard deck, find the probability that the third card is a face card, given that the first card was a queen and the second card was a 5.

A) $\dfrac{11}{50}$ B) $\dfrac{3}{13}$ C) $\dfrac{6}{25}$ D) $\dfrac{1}{5}$

83) _____

Find the indicated probability.

84) A sample of 4 different calculators is randomly selected from a group containing 19 that are defective and 36 that have no defects. What is the probability that at least one of the 4 calculators in the sample is defective?

A) 0.190   B) 0.173   C) 0.827   D) 0.816

84) _____

Solve the problem.

85) If 5 apples in a barrel of 25 apples are rotten, what is the expected number of rotten apples in a random sample of 2 apples?

A) $\dfrac{4}{5}$ B) $\dfrac{2}{5}$ C) 1   D) $\dfrac{3}{5}$

85) _____

86) If 3 balls are drawn at random from a bag containing 3 red and 4 blue balls, what is the expected number of red balls in the sample?

A) 1.39   B) 1.29   C) 0.89   D) 1.54

86) _____

Find the expected value of the random variable.

87) The random variable X is the number of people who have a college degree in a randomly selected group of four adults from a particular town. Its probability distribution is given in the table.

x	P(X = x)
0	0.1296
1	0.3456
2	0.3456
3	0.1536
4	0.0256

A) 1.60   B) 1.73   C) 2.00   D) 1.50

87) _____

Construct a stem and leaf display for given data.

88) Here are the final scores for the last 16 games played by the local basketball team.

88) _____

45 54 53 65
67 75 57 59
87 86 79 74
67 75 87 65

A)
```
4|5
5|3 4 7 9
6|5 5 7 7
7|4 5 5 9
8|6 7 7
```

B)
```
4|45
5|53 54 57 59
6|65 67
7|74 75 79
8|86 87
```

C)
```
4|5
5|3 4 7 9
6|5 7
7|4 5 9
8|6 7
```

D)
```
4|45
5|53 54 57 59
6|65 65 67 67
7|74 75 75 79
8|86 86 87
```
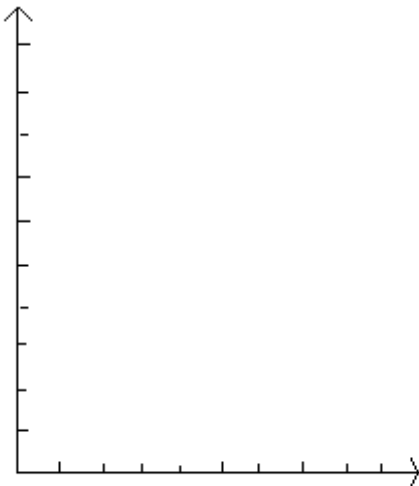
Construct the specified histogram.

89) The frequency table below shows the number of days off in a given year for 30 police detectives.

89) _____

Days off	Frequency
0– 1	10
2 –3	1
4 – 5	7
6 – 7	7
8 – 9	1
10 –11	4

Construct a histogram.

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

Find the mean of the set of data.

90) 1.202, 12.337, 4.185, 7.194, 5.294   90) _____

    Round your answer to three decimal places.
      A) 7.553   B) 6.042   C) 1.299   D) 5.800

Find the median.

91) 6, 2, 26, 14, 49, 42, 31   91) _____
      A) 26   B) 31   C) 24   D) 14

Find the mode or modes.

92) 79, 42, 32, 42, 29, 79   92) _____
      A) 42   B) 79, 42   C) 79   D) 50.5

Find the mean for the given frequency distribution.

93) Find the approximate mean for the grouped frequency distribution. Use the class midpoint to represent each class. Round your answer to two decimal places.   93) _____

Score	Frequency
60 – 69	3
70 – 79	12
80 – 89	7
90 – 99	2

      A) 74.50   B) 78.12   C) 79.50   D) 77.83

Find the median for the given frequency distribution.

94)

Value	Frequency
20	4
30	6
40	5
50	3
80	1

94) _____

      A) 40   B) 44   C) 35   D) 30

Find the range for the set of data given.

95)   95) _____

Value	Frequency
13	2
20	4
25	6
29	5
35	3

      A) 22   B) 23   C) 21   D) 48

Find the standard deviation. Round to one more place than the data.

96)

Temp. °F	Days
70	9
71	18
72	16
73	12
74	2

96) _____

A) 1.1   B) 86.9   C) 71.6   D) 0.6

Use Chebyshev's theorem to solve the problem.

97) In a certain distribution of numbers, the mean is 50 and the standard deviation is 6. What can you say about the percentage of numbers that lie between 38 and 62?

97) _____

A) at most 25%   B) at least 75%   C) at most 75%   D) at least 50%

Find the standard deviation for the given data. Round your final answer to one more decimal place than that used for the observations.

98) The amount of sun–induced expansion (in mm) of a steel I–beam 10 m long before expansion: 7.83, 7.84, 7.80, 7.70, 7.83

98) _____

A) 0.058 mm   B) 0.089 mm   C) 0.116 mm   D) 0.003 mm

Solve the problem.

99) Elizabeth and Angela skate for their college speed–skating team. In the last race, Elizabeth skated the 500–meter race in 59 seconds. The average for this race is 65 seconds with a standard deviation of 4.0 seconds. Angela skated the 1000–meter race in 135 seconds. The average for this race is 140 seconds with a standard deviation of 10.0 seconds. Find the z–score for each skater. Relatively speaking, which skater had the faster time?

99) _____

A) −6.0, −5.0, Angela   B) −1.5, −0.5, Angela
C) −6.0, −5.0, Elizabeth   D) −1.5, −0.5, Elizabeth

100) Martin scored 41 points on a quiz. The average score for his class was 39 with a standard deviation of 2.4. Martin's brother Jeff who is in a different class also had a quiz. He scored 30. The average score in Jeff's class was 26 with a standard deviation of 1.9. Find the z–score for each person. Relatively speaking, who did better?

100) _____

A) 2.0, 4.0, Martin   B) 0.83, 2.11, Jeff
C) 2.0, 4.0, Jeff   D) 0.83, 2.11, Martin

Solve the problem. Assume that simple interest is being calculated in each case. Round the answer to the nearest cent unless otherwise indicated.

101) Allan borrowed $3900 from his father to buy a car. He repaid him after 9 months with interest of 7% per year. Find the total amount he repaid.

101) _____

A) $4082.00   B) $204.75   C) $4173.00   D) $4104.75

102) Martin takes out a simple interest loan at 4 %. After 10 months the amount of interest on the loan is $80.93. What was the amount of the loan? Round to the nearest dollar.

102) _____

A) $2768   B) $2389   C) $2428   D) $24

Find the compound interest earned by the deposit. Round to the nearest cent.

103) $7824 at 4% compounded continuously for 4 years

103) _____

A) $3389.90   B) $2122.03   C) $1357.55   D) $9181.55

Use the compound interest formula to compute the future value of the investment.

104) $5500 at 8% compounded monthly for 7 years

    A) $5761.86   B) $196,473.48   C) $9610.82   D) $7688.66

104) _____

Solve the problem.

105) An item is purchased for $2500 with a down payment of $500. There is a finance charge of $150. Find the monthly payment if 20 payments are made.

    A) $132.50   B) $107.50

    C) $100.00   D) None of the above is correct.

105) _____

106) The cash price of a fitness system is $659.99. The customer paid $115 as a down payment. The remainder will be paid in 36 monthly installments of $19.16 each. Find the amount of the finance charge.

    A) $689.76   B) $141.17   C) $144.77   D) $29.77

106) _____

Solve the problem. Use an annual percentage rate table if necessary.

107) Jennifer has a 60–month fixed installment loan, with a monthly payment of $168.01. The amount she borrowed was $8000. Instead of making her 12th payment, Jennifer is paying the remaining balance on the loan. What is the total amount due to pay off the balance (use the actuarial method)?

    A) $6765.67   B) $6687.65   C) $6855.67   D) $6404.13

107) _____

Solve the problem. If necessary, use the table of monthly payments below. Round your answer to the nearest cent.

Monthly Payments to Repay Principal and Interest on a $1000 Mortgage

Term of Mortgage (Years)

Annual Rate (r)	5	10	15	20	25	30
8.0%	$20.27639	$12.13276	$9.55652	$8.36440	$7.71816	$7.33765
8.5%	20.51653	12.39857	9.84740	8.67823	8.05227	7.68913
9.0%	20.75836	12.66758	10.14267	8.99726	8.39196	8.04623
9.5%	21.00186	12.93976	10.44225	9.32131	8.73697	8.40854
10.0%	21.24704	13.21507	10.74605	9.65022	9.08701	8.77572
10.5%	21.49390	13.49350	11.05399	9.98380	9.44182	9.14739
11.0%	21.74242	13.77500	11.36597	10.32188	9.80113	9.52323
11.5%	21.99261	14.05954	11.68190	10.66430	10.16469	9.90291
12.0%	22.24445	14.34709	12.00168	11.01086	10.53224	10.28613

108) Find the total monthly payment, including taxes and insurance, on the following fixed–rate mortgage.

Amount of loan: $105,250

Interest rate: 10%

Term of loan: 25 years

Annual taxes: $3001

Annual insurance: $466

    A) $1245.32   B) $1263.53   C) $1294.05   D) $956.41

108) _____

Find the total return earned by the given bond.

109)

Face Value	Annual Interest Rate	Term to Maturity
$9000	6.5%	10 years

    A) $58,500   B) $585,000   C) $5850   D) $585

109) _____

Solve the problem.

110) The following information on Company X appears in a stock table. Find the basic cost (ignoring any broker's fees) to purchase 130 shares of Company X at the day's closing price.

110) _____

YTD %CHG	52–WEEK HI	LO	STOCK (SYM)	DIV	YLD %	PE	VOL 100s	CLOSE	NET CHG
1	36.32	28.99	Company X CMX	0.41	1.2	23	6592	33.60	0.17

A) $3768.70   B) $4721.60   C) $33.60   D) $4368.00

111) Find the future value (to the nearest dollar) of the following inflation–adjusted retirement account. Deposits are made at the end of each year.

111) _____

Annual inflation rate: 1%
Initial deposit: $2500
Annual rate of return: 5%
Number of years: 20

A) $97,630   B) $89,569   C) $85,091   D) $103,005

For the given investment, assume that there is no opportunity for reinvestment of returns. Find the monthly return, annual return, or annual percentage return as indicated.

112)

112) _____

Amount Invested	Monthly Percentage Return
$4281	0.57%

Find the annual percentage return.

A) 292.82%   B) 6.84%   C) 7.06%   D) 5.7%

Assume that the given mutual fund investment earns monthly returns that are reinvested and subsequently earn at the same rate. Find the beginning value of the investment, first monthly return, or effective annual rate of return as indicated.

113)

113) _____

Beginning NAV	Number of Shares Purchased	Monthly Percentage Return
$13.74	372	1.5%

Find the beginning value of the investment.

A) $76.67   B) $5187.95   C) $13.74   D) $5111.28

Solve the problem.

114) For the given stock investment, find the capital gain:

114) _____

Number of Shares	Purchase Price Per Share	Dividend Per Share	Sale Price Per Share
150	$22	$2	$45

A) $3450   B) $3750   C) $23   D) $6750