Finite Math: Test 3 Review
Name_____

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

Use a Venn diagram to answer the question.

1) At East Zone University (EZU) there are 879 students taking College Algebra or Calculus. 423 are taking College Algebra, 501 are taking Calculus, and 45 are taking both College Algebra and Calculus. How many are taking Calculus but not Algebra? 1) _____
   A) 378 B) 834 C) 456 D) 333

2) At East Zone University (EZU) there are 718 students taking College Algebra or Calculus. 226 are taking College Algebra, 555 are taking Calculus, and 63 are taking both College Algebra and Calculus. How many are taking Algebra but not Calculus? 2) _____
   A) 100 B) 163 C) 492 D) 655

3) A survey of 160 families showed that 3) _____
   59 had a dog;
   46 had a cat;
   19 had a dog and a cat;
   63 had neither a cat nor a dog, and in addition did not have a parakeet;
   3 had a cat, a dog, and a parakeet.
   How many had a parakeet only?
   A) 21 B) 26 C) 16 D) 11

Find the probability of the given event.

4) A card drawn from a well–shuffled deck of 52 cards is red. 4) _____
   A) $\frac{13}{52}$ B) $\frac{1}{52}$ C) $\frac{1}{26}$ D) $\frac{1}{2}$

5) A card drawn from a well–shuffled deck of 52 cards is a face card or a 6. 5) _____
   A) $\frac{4}{13}$ B) $\frac{12}{13}$ C) 16 D) $\frac{2}{13}$

6) A bag contains 9 red marbles, 4 blue marbles, and 8 green marbles. A randomly drawn marble is blue. 6) _____
   A) $\frac{4}{13}$ B) $\frac{3}{7}$ C) $\frac{4}{21}$ D) $\frac{8}{21}$

7) A bag contains 13 balls numbered 1 through 13. A randomly chosen ball has an even number. 7) _____
   A) 6 B) $\frac{6}{13}$ C) $\frac{2}{13}$ D) $\frac{13}{6}$

Use the given table to find the probability of the indicated event. Round your answer to the nearest thousandth

8) College students were given three choices of pizza toppings and asked to choose one favorite. The following table shows the results. 8) _____

toppings	freshman	sophomore	junior	senior
cheese	15	13	23	28
meat	29	28	13	15
veggie	13	15	29	28

A randomly selected student prefers a meat topping.

A) .052 B) .341 C) .153 D) .363

9) College students were given three choices of pizza toppings and asked to choose one favorite. The following table shows the results. 9) _____

toppings	freshman	sophomore	junior	senior
cheese	15	12	28	26
meat	27	26	12	15
veggie	12	15	27	26

A randomly selected student prefers a meat topping.

A) .332 B) .336 C) .338 D) .112

Solve the problem.

10) One card is selected from a deck of cards. Find the probability of selecting a red card or a king. 10) _____

A) $\frac{15}{26}$ B) $\frac{27}{52}$ C) $\frac{1}{26}$ D) $\frac{7}{13}$

11) One card is selected from a deck of cards. Find the probability of selecting a red card or a diamond. 11) _____

A) $\frac{3}{4}$ B) 0 C) $\frac{1}{4}$ D) $\frac{1}{2}$

Suppose P(C) = .048, P(M ∩ C) = .044, and P(M ∪ C) = .524. Find the indicated probability.

12) P(M' ∩ C') 12) _____

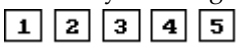
A) .476 B) .564 C) .956 D) .568

13) P(M' ∪ C') 13) _____

A) .466 B) .956 C) .004 D) .524

Find the odds in favor of the indicated event.

14) Randomly drawing an even number from the cards pictured below. 14) _____



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

15) Rolling a 4 with a fair die. 15) _____

A) 1 to 6 B) 1 to 4 C) 1 to 5 D) 2 to 3

Solve the problem.

16) A survey revealed that 44% of people are entertained by reading books, 46% are entertained by watching TV, and 10% are entertained by both books and TV. What is the probability that a person will be entertained by either books or TV? Express the answer as a percentage. 16) _____

A) 90% B) 10% C) 100% D) 80%

17) If a single fair die is rolled, find the probability of a 4 given that the number rolled is odd. 17) _____

A) 0 B) 1 C) $\frac{1}{6}$ D) $\frac{1}{2}$

18) If a single fair die is rolled, find the probability of a 5 given that the number rolled is odd. 18) _____

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

19) If three cards are drawn without replacement from an ordinary deck, find the probability that the third card is a heart, given that the first two cards were hearts. 19) _____

A) $\frac{11}{50}$ B) $\frac{1}{6}$ C) $\frac{1}{5}$ D) $\frac{6}{25}$

20) If two cards are drawn without replacement from an ordinary deck, find the probability that the second card is an ace, given that the first card was an ace. 20) _____

A) $\frac{1}{17}$ B) $\frac{3}{52}$ C) $\frac{4}{51}$ D) $\frac{1}{3}$

Assume that two marbles are drawn without replacement from a box with 1 blue, 3 white, 2 green, and 2 red marbles. Find the probability of the indicated result.

21) The second marble is white, given that the first marble is blue. 21) _____

A) $\frac{3}{56}$ B) $\frac{3}{7}$ C) $\frac{3}{8}$ D) $\frac{3}{64}$

22) One marble is white, and one marble is blue. 22) _____

A) $\frac{1}{4}$ B) $\frac{1}{2}$ C) $\frac{3}{28}$ D) $\frac{3}{56}$

Use the given table to find the indicated probability.

23) People were given three choices of soft drinks and asked to choose one favorite. The following table shows the results. 23) _____

	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

P(person is over 40 ∩ person drinks cola)?

A) $\frac{4}{19}$ B) $\frac{4}{17}$

C) $\frac{4}{51}$ D) None of the above

24) College students were given three choices of pizza toppings and asked to choose one favorite. The following table shows the results. 24) _____

toppings	freshman	sophomore	junior	senior
cheese	13	12	28	20
meat	18	20	12	13
veggie	12	13	18	20

P(favorite topping is veggie | student is junior or senior)?
Round the answer to the nearest hundredth.

A) .342 B) .310 C) .603 D) .191

Solve the problem. Express the answer as a percentage.

25) 47% of the workers at Motor Works are female, while 57% of the workers at City Bank are female. If one of these companies is selected at random (assume a 50–50 chance for each), and then a worker is selected at random, what is the probability that the worker will be female? 25) _____

A) 10% B) 57% C) 52% D) 47%

A bag contains 6 cherry, 3 orange, and 2 lemon candies. You reach in and take 3 pieces of candy at random. Find the probability.

26) 2 cherry, 1 lemon 26) _____

A) .7272 B) .3636 C) .1818 D) .1212

27) All orange 27) _____

A) .0182 B) .0061 C) .0011 D) .7272

Find the probability of the following card hands from a 52–card deck. In poker, aces are either high or low. A bridge hand is made up of 13 cards.

28) In poker, a flush (5 in same suit) in any suit 28) _____

A) .000495 B) .000347 C) .00198 D) .00122

29) In poker, a full house (3 cards of one value, 2 of another value) 29) _____

A) 6.55×10^{-3} B) 3.85×10^{-5} C) 9.20×10^{-6} D) 1.44×10^{-3}

Solve the problem.

30) At the first tri–city meeting, there were 8 people from town A, 7 people from town B, and 5 people from town C. If the council consists of 5 people, find the probability of 3 from town A and 2 from town B. 30) _____

A) .036 B) .072 C) .076 D) .023

31) What is the probability that at least 2 students in a class of 36 have the same birthday? 31) _____

A) .814 B) .849 C) .799 D) .832

32) What is the probability that at least 2 of the 435 members of the House of Representatives have the same birthday? 32) _____

A) 1 B) .999 C) .995 D) .996

A die is rolled 20 times and the number of twos that come up is tallied. Find the probability of getting the given result

33) Exactly four twos 33) _____

A) .101 B) .075 C) .202 D) .083

34) Less than four twos 34) _____

A) .364 B) .867 C) .769 D) .567

Find the probability of the event.

35) A 10−question multiple choice test has 4 possible answers for each question. A student selects at least 6 correct answers. 35) _____

A) .989 B) .118 C) .995 D) .020

Find the expected value of the random variable in the experiment.

36) Three cards are drawn from a deck without replacement. The number of aces is counted. 36) _____

A) .2308 B) .2174 C) 1.0134 D) 1

Find the expected value for the random variable.

37) 37) _____

z	3	6	9	12	15
P(z)	0.14	0.19	0.36	0.21	0.10

A) 8.82 B) 8.7 C) 9 D) 6.15

Solve the problem.

38) Suppose you buy 1 ticket for $1 out of a lottery of 1000 tickets where the prize for the one winning ticket is to be $500. What are your expected winnings? 38) _____

A) −$.40 B) $0 C) −$1.00 D) −$.50

39) Suppose a charitable organization decides to raise money by raffling a trip worth $500. If 3000 tickets are sold at $1.00 each, find the expected value of winning for a person who buys 1 ticket. 39) _____

A) −$.81 B) −$.85 C) −$.83 D) −$1.00

40) Find the expected number of boys in a family of 4 children. 40) _____

A) 2.5 B) 3 C) 2 D) 2.75

Find the mean for the list of numbers. Round to the nearest tenth.

41) 20, 4, 23, 20 41) _____

A) 23.7 B) 16.8 C) 15.3 D) 17.3

Find the mean for the frequency distribution. Round to the nearest tenth.

42) 42) _____

Value	Frequency
12	3
18	3
26	5
31	6
35	1

A) 6.8 B) 27.6 C) 24.5 D) 26.3

Find the median.

43) 2, 14, 22, 21, 46, 47 43) _____

A) 21.5 B) 22 C) 25.5 D) 21

Find the mode or modes.

44) 82, 59, 32, 59, 29, 82 44) _____

A) 82, 59 B) 57.2 C) 82 D) 59

Solve the problem.

45) Using the employment information in the table on Alpha Corporation, find the mean for the grouped data. 45) _____

Years of Service	Frequency
1 – 5	5
6 – 10	20
11 – 15	25
16 – 20	10
21 – 25	5
26 – 30	3

A) 15.50 B) 13.57 C) 12.93 D) 10.83

Find the standard deviation.

46) 7, 7, 8, 14, 7, 7, 14, 9, 6 46) _____

A) 1.1 B) 2.9 C) 3.3 D) 3.1

47) 90, 59, 58, 34, 71, 40, 56, 79, 37 47) _____

A) 7.3 B) 18.2 C) 19.3 D) 20.6

Find the requested area under the standard normal curve.

48) The area between $z = 0$ and $z = 3.01$. 48) _____

A) 49.8% B) 49.9% C) 50.1% D) 99.9%

49) The area to the left of $z = 1.13$. 49) _____

A) 0.1292 B) 0.8485 C) 0.8708 D) 0.8907

50) The area between $z = 0.7$ and $z = 1.98$. 50) _____

A) 1.7341 B) 0.2175 C) 0.2181 D) −0.2181

51) The area between $z = -1.10$ and $z = -0.36$. 51) _____

A) 0.2237 B) −0.2237 C) 0.4951 D) 0.2239

Let X represent a continuous normally distributed random variable. Solve the problem.

52) The mean is = 15.2 and the standard deviation is = 0.9 52) _____
Find $P(X > 17)$

A) 0.0228 B) 0.9772 C) 0.9821 D) 0.9713

53) The mean is = 40.0 and the standard deviation = 12.0 Compute z for X = 46.0. Find $P(X < 46.0)$. 53) _____

A) 0.6915 B) 0.6170 C) 0.3830 D) 0.3085

54) The mean is = 137.0 and the standard deviation = 5.3 Compute z_1 and z_2 respectively for $x_1 = 134.4$ and $x_2 = 140.1$. 54) _____

Find $P(134.4 < X < 140.1)$.

A) 0.6242 B) 0.4069 C) 0.8138 D) 1.0311

Assume the distribution is normal. Use the area of the normal curve to answer the question. Round to the nearest whole percent.

55) The mean clotting time of blood is 7.35 seconds, with a standard deviation of 0.35 seconds. What is the probability that blood clotting time will be less than 7 seconds? 55) _____

A) 14% B) 16% C) 84% D) 15%

56) A machine produces pencils with an average diameter of 0.30 inches and a standard deviation of 0.01 inches. What is the probability of a pencil with a diameter less than 0.285 inches? 56) _____

A) 7% B) 9% C) 6% D) 8%

A company installs 5,000 light bulbs. Each bulb has an average life of 500 hours with a standard deviation of 100 hours. The life of each bulb is approximated by a normal curve. Find the number of bulbs that can be expected to last the period of time.

57) At least 500 hours 57) _____

A) 1,000 B) 2,500 C) 5,000 D) 2,400

58) Between 290 hours and 540 hours 58) _____

A) 1,639 B) 3,190 C) 1,641 D) 3,185

Answer Key
Testname: 1324-3-REVIEW

1) C
2) B
3) D
4) D
5) A
6) C
7) B
8) B
9) A
10) D
11) D
12) A
13) B
14) C
15) C
16) D
17) A
18) A
19) A
20) A
21) B
22) C
23) C
24) A
25) C
26) C
27) B
28) C
29) D
30) C
31) D
32) A
33) C
34) D
35) D
36) A
37) A
38) D
39) C
40) C
41) B
42) C
43) A
44) A
45) C
46) D
47) C
48) B
49) C
50) C

51) A
52) A
53) A
54) B
55) B
56) A
57) B
58) D