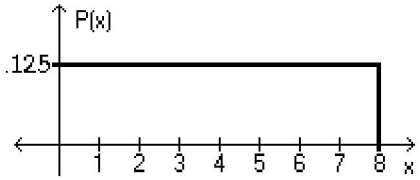
Statistics Ch 6 Exam Review

Name_____

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

Using the following uniform density curve, answer the question.



1) What is the probability that the random variable has a value greater than 5? 1) _____
A) 0.250 B) 0.500 C) 0.325 D) 0.375

2) What is the probability that the random variable has a value greater than 1.3? 2) _____
A) 0.8375 B) 0.9625 C) 0.7125 D) 0.7875

3) What is the probability that the random variable has a value less than 6? 3) _____
A) 0.625 B) 0.875 C) 0.500 D) 0.750

4) What is the probability that the random variable has a value less than 2.7? 4) _____
A) 0.3375 B) 0.2125 C) 0.4625 D) 0.0875

5) What is the probability that the random variable has a value between 0.4 and 0.8? 5) _____
A) 0.05 B) 0.075 C) 0.175 D) 0.3

6) What is the probability that the random variable has a value between 5.3 and 5.7? 6) _____
A) 0.0500 B) 0.0750 C) 0.1750 D) 0.3000

Assume that the weight loss for the first month of a diet program varies between 6 pounds and 12 pounds, and is spread evenly over the range of possibilities, so that there is a uniform distribution. Find the probability of the given range of pounds lost.

7) More than 10 pounds 7) _____
A) $\frac{1}{3}$ B) $\frac{5}{6}$ C) $\frac{2}{3}$ D) $\frac{1}{7}$

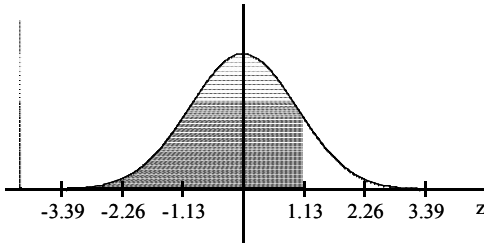
8) Less than 11 pounds 8) _____
A) $\frac{1}{6}$ B) $\frac{5}{6}$ C) $\frac{1}{3}$ D) $\frac{5}{7}$

9) Between 8 pounds and 11 pounds 9) _____
A) $\frac{1}{3}$ B) $\frac{2}{3}$ C) $\frac{1}{2}$ D) $\frac{1}{4}$

10) Between 8.5 pounds and 10 pounds 10) _____
A) $\frac{1}{2}$ B) $\frac{1}{3}$ C) $\frac{1}{4}$ D) $\frac{3}{4}$

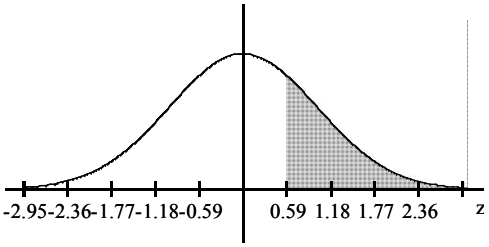
Find the area of the shaded region. The graph depicts the standard normal distribution with mean 0 and standard deviation 1.

11) 11) _____



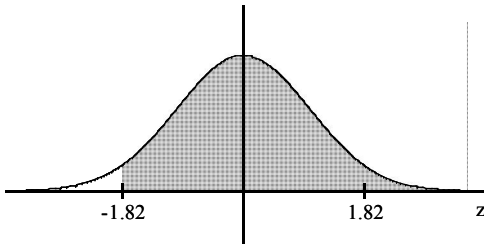
A) 0.8907 B) 0.8485 C) 0.8708 D) 0.1292

12) 12) _____



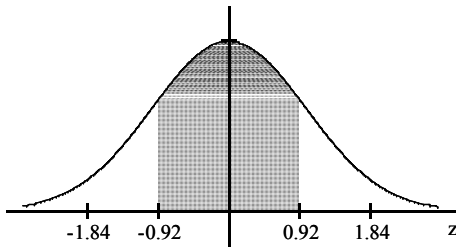
A) 0.2190 B) 0.7224 C) 0.2776 D) 0.2224

13) 13) _____



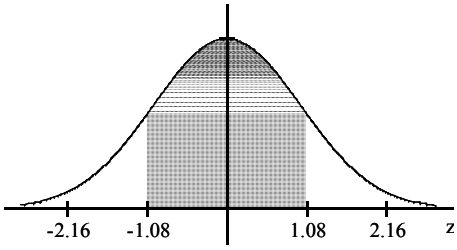
A) 0.4656 B) 0.0344 C) 0.9656 D) −0.0344

14) 14) _____



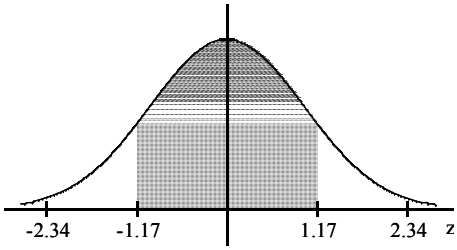
A) 0.1788 B) 0.6424 C) 0.3576 D) 0.8212

15) 15) _____



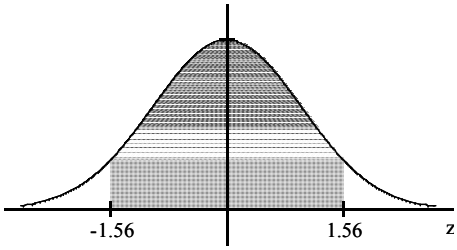
A) 0.8599 B) 0.1401 C) 0.7198 D) 0.2802

16) 16) _____



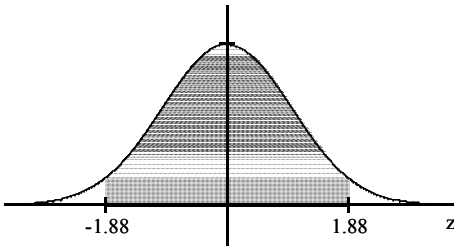
A) 0.1210 B) 0.2420 C) 0.8790 D) 0.7580

17) 17) _____



A) 0.0594 B) 0.1188 C) 0.8812 D) 0.9406

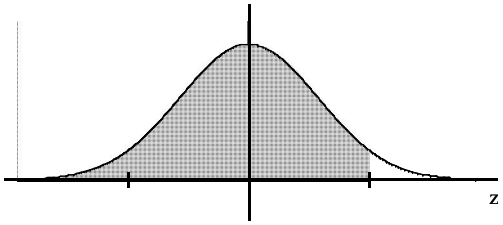
18) 18) _____



A) 0.9699 B) 0.0301 C) 0.0602 D) 0.9398

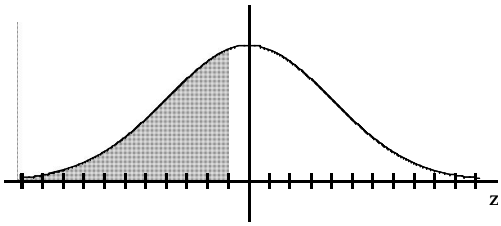
Find the indicated z score. The graph depicts the standard normal distribution with mean 0 and standard deviation 1.

19) Shaded area is 0.9599. 19) _____



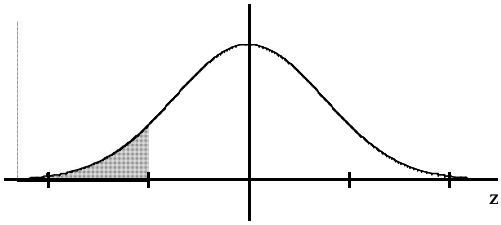
A) 1.75 B) –1.38 C) 1.03 D) 1.82

20) Shaded area is 0.4013. 20) _____



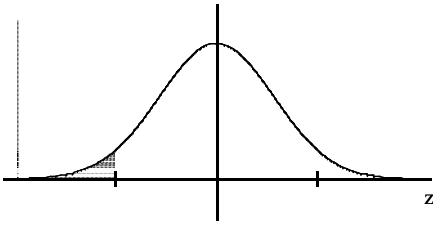
A) 0.25 B) 0.57 C) −0.25 D) −0.57

21) Shaded area is 0.0901. 21) _____



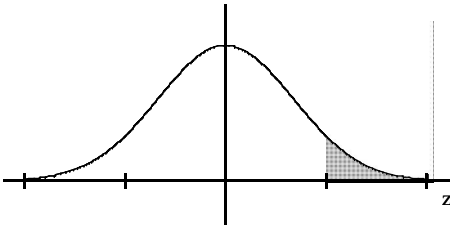
A) −1.26 B) −1.45 C) −1.39 D) −1.34

22) Shaded area is 0.0401. 22) _____



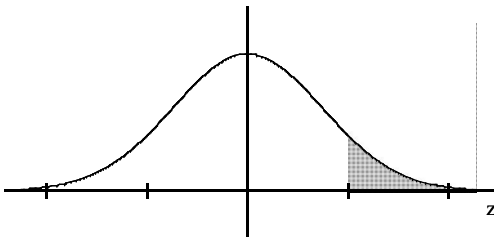
A) −1.89 B) −1.48 C) −1.63 D) −1.75

23) Shaded area is 0.0694. 23) _____



A) 1.48 B) 1.45 C) 1.26 D) 1.39

24) Shaded area is 0.0901. 24) _____



A) 1.34 B) 1.39 C) 1.45 D) 1.26

If z is a standard normal variable, find the probability.

25) The probability that z lies between 0 and 3.01 25) _____

A) 0.5013 B) 0.1217 C) 0.4987 D) 0.9987

26) The probability that z lies between −2.41 and 0 26) _____

A) 0.4910 B) 0.4920 C) 0.0948 D) 0.5080

27) The probability that z is less than 1.13 27) _____

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

28) The probability that z lies between −1.10 and −0.36 28) _____

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

29) The probability that z lies between 0.7 and 1.98 29) _____

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

30) The probability that z lies between −0.55 and 0.55 30) _____

A) 0.9000 B) −0.9000 C) 0.4176 D) −0.4176

31) The probability that z is greater than −1.82 31) _____

A) 0.0344 B) 0.4656 C) −0.0344 D) 0.9656

32) $P(z > 0.59)$ 32) _____

A) 0.7224 B) 0.2224 C) 0.2776 D) 0.2190

33) $P(z < 0.97)$ 33) _____

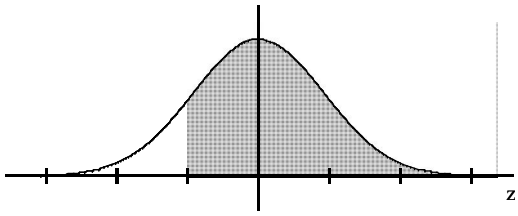
A) 0.8078 B) 0.8340 C) 0.8315 D) 0.1660

34) $P(-0.73 < z < 2.27)$ 34) _____

A) 0.7557 B) 0.2211 C) 1.54 D) 0.4884

Find the indicated z score. The graph depicts the standard normal distribution with mean 0 and standard deviation 1.

35) Shaded area is 0.8599. 35) _____



A) 0.5557 B) 1.08 C) 0.8051 D) −1.08

The Precision Scientific Instrument Company manufactures thermometers that are supposed to give readings of 0°C at the freezing point of water. Tests on a large sample of these thermometers reveal that at the freezing point of water, some give readings below 0°C (denoted by negative numbers) and some give readings above 0°C (denoted by positive numbers). Assume that the mean reading is 0°C and the standard deviation of the readings is 1.00°C. Also assume that the frequency distribution of errors closely resembles the normal distribution. A thermometer is randomly selected and tested. Find the temperature reading corresponding to the given information.

36) Find P_{96}, the 96th percentile. 36) _____

A) 1.03° B) 1.82° C) −1.38° D) 1.75°

37) Find P_{40}, the 40th percentile. 37) _____

A) 0.25° B) −0.25° C) 0.57° D) −0.57°

38) Find Q_3, the third quartile. 38) _____

A) 0.82° B) 0.67° C) −1.3° D) 0.53°

39) If 7% of the thermometers are rejected because they have readings that are too high, but all other thermometers are acceptable, find the temperature that separates the rejected thermometers from the others. 39) _____

A) 1.45° B) 1.26° C) 1.48° D) 1.39°

40) If 9% of the thermometers are rejected because they have readings that are too high, but all other thermometers are acceptable, find the temperature that separates the rejected thermometers from the others. 40) _____

A) 1.39° B) 1.45° C) 1.34° D) 1.26°

41) If 7% of the thermometers are rejected because they have readings that are too low, but all other thermometers are acceptable, find the temperature that separates the rejected thermometers from the others. 41) _____

A) −1.48° B) −1.26° C) −1.39° D) −1.53°

42) If 9% of the thermometers are rejected because they have readings that are too low, but all other thermometers are acceptable, find the temperature that separates the rejected thermometers from the others. 42) _____

A) −1.45° B) −1.39° C) −1.34° D) −1.26°

43) A quality control analyst wants to examine thermometers that give readings in the bottom 4%. Find the reading that separates the bottom 4% from the others. 43) _____

A) −1.89° B) −1.63° C) −1.48° D) −1.75°

44) A quality control analyst wants to examine thermometers that give readings in the bottom 7%. Find the reading that separates the bottom 7% from the others. 44) _____

A) −1.48° B) −1.63° C) −1.75° D) −1.89°

45) If 6.3% of the thermometers are rejected because they have readings that are too high and another 6.3% are rejected because they have readings that are too low, find the two readings that are cutoff values separating the rejected thermometers from the others. 45) _____

A) −1.45° , 1.45° B) −1.53° , 1.53° C) −1.39° , 1.39° D) −1.46° , 1.46°

Find the indicated value.

46) $z_{0.005}$ 46) _____

A) 2.575 B) 2.835 C) 2.535 D) 2.015

47) $z_{0.36}$ 47) _____

A) 0.45 B) 1.60 C) 1.76 D) 0.36

Provide an appropriate response.

48) Which of the following is true about the distribution of IQ scores? 48) _____

A) The standard deviation is 10. B) The mode is 100.

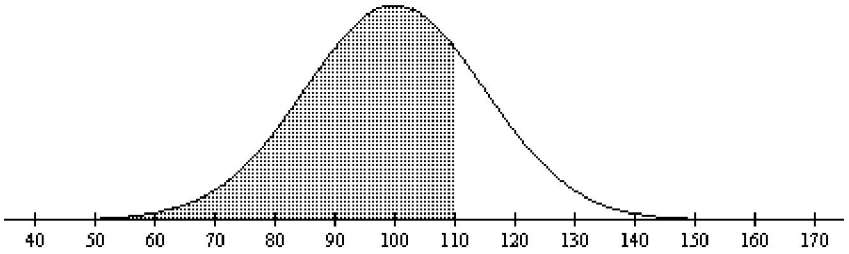
C) The mean is 50. D) The mean is 1.

49) Which of the following is true about the distribution of IQ scores? 49) _____

A) The area under its bell-shaped curve is 1. B) The area under its bell-shaped curve is 5.

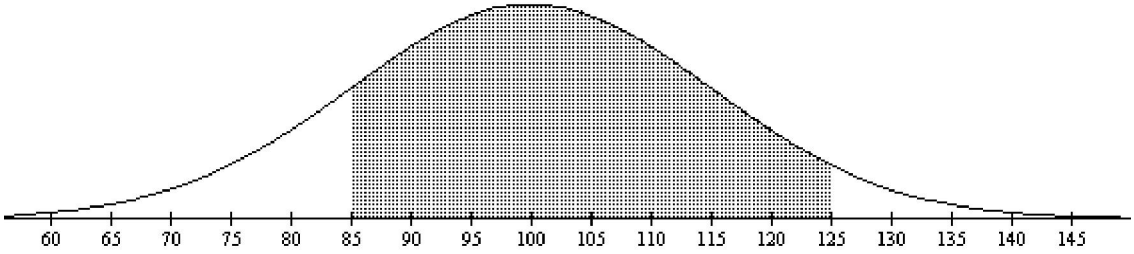
C) It is a standard normal distribution. D) Its distribution is skewed to the left.

50) Find the area of the shaded region. The graph depicts IQ scores of adults, and those scores are normally distributed with a mean of 100 and a standard deviation of 15 (as on the Wechsler test). 50) _____



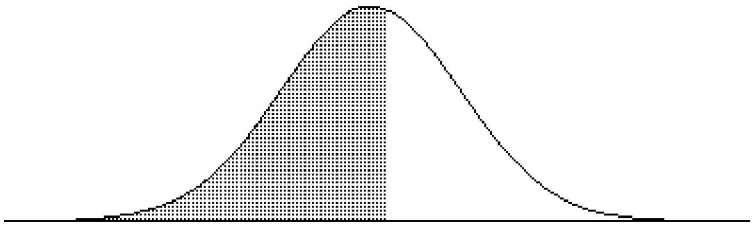
A) 0.4400 B) 0.8051 C) 0.6293 D) 0.7486

51) Find the area of the shaded region. The graph depicts IQ scores of adults, and those scores are normally distributed with a mean of 100 and a standard deviation of 15 (as on the Wechsler test). 51) _____



A) 0.7303 B) 0.7619 C) 0.7938 D) 0.7745

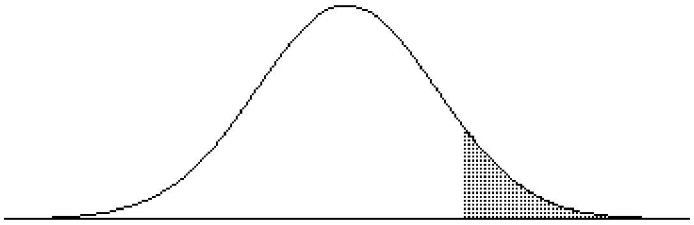
52) Find the indicated IQ score. The graph depicts IQ scores of adults, and those scores are normally distributed with a mean of 100 and a standard deviation of 15 (as on the Wechsler test). 52) _____



The shaded area under the curve is 0.5675.

A) 110.7 B) 102.6 C) 97.5 D) 129.6

53) Find the indicated IQ score. The graph depicts IQ scores of adults, and those scores are normally distributed with a mean of 100 and a standard deviation of 15 (as on the Wechsler test). 53) _____



The shaded area under the curve is 0.10.

A) 100.5 B) 119.2 C) 108.1 D) 80.8

54) Assume that adults have IQ scores that are normally distributed with a mean of 100 and a standard deviation of 15 (as on the Wechsler test). Find the probability that a randomly selected adult has an IQ between 90 and 120 (somewhere in the range of normal to bright normal). 54) _____

A) 0.6227 B) 0.6568 C) 0.6014 D) 0.6977

55) Assume that adults have IQ scores that are normally distributed with a mean of 100 and a standard deviation of 15 (as on the Wechsler test). Find P_{30}, which is the IQ score separating the bottom 30% from the top 70%. 55) _____

A) 92.8 B) 91.4 C) 91.9 D) 92.2

56) Assume that adults have IQ scores that are normally distributed with a mean of 100 and a standard deviation of 15 (as on the Wechsler test). Find the IQ score separating the top 14% from the others. 56) _____

A) 108.6 B) 99.3 C) 83.7 D) 116.2

Solve the problem. Round to the nearest tenth unless indicated otherwise.

57) In one region, the September energy consumption levels for single–family homes are found to be normally distributed with a mean of 1050 kWh and a standard deviation of 218 kWh. Find P_{45}, which is the consumption level separating the bottom 45% from the top 55%. 57) _____

A) 1087.8 B) 1148.1 C) 1021.7 D) 1078.3

58) Scores on a test are normally distributed with a mean of 63.2 and a standard deviation of 11.7. Find P_{81}, which separates the bottom 81% from the top 19%. 58) _____

A) 0.88 B) 66.6 C) 73.5 D) 0.291

59) A bank's loan officer rates applicants for credit. The ratings are normally distributed with a mean of 200 and a standard deviation of 50. Find P_{60}, the score which separates the lower 60% from the top 40%. 59) _____

A) 212.5 B) 207.8 C) 187.5 D) 211.3

60) The amount of rainfall in January in a certain city is normally distributed with a mean of 4.5 inches and a standard deviation of 0.3 inches. Find the value of the quartile Q_1. 60) _____

A) 1.1 B) 4.3 C) 4.4 D) 4.7

61) Assume that women have heights that are normally distributed with a mean of 63.6 inches and a standard deviation of 2.5 inches. Find the value of the quartile Q_3. 61) _____

A) 66.1 inches B) 65.3 inches C) 67.8 inches D) 64.3 inches

62) Scores on an English test are normally distributed with a mean of 37.3 and a standard deviation of 8. Find the score that separates the top 59% from the bottom 41% 62) _____

A) 39.1 B) 42.0 C) 32.6 D) 35.5

63) Suppose that replacement times for washing machines are normally distributed with a mean of 8.4 years and a standard deviation of 2 years. Find the replacement time that separates the top 18% from the bottom 82%. 63) _____

A) 10.2 years B) 6.6 years C) 8.8 years D) 9.7 years

64) Human body temperatures are normally distributed with a mean of 98.20°F and a standard deviation of 0.62°F. Find the temperature that separates the top 7% from the bottom 93%. Round to the nearest hundredth of a degree. 64) _____

A) 97.28°F B) 98.78°F C) 99.12°F D) 98.40°F

65) The weights of certain machine components are normally distributed with a mean of 8.01 g and a standard deviation of 0.06 g. Find the two weights that separate the top 3% and the bottom 3%. These weights could serve as limits used to identify which components should be rejected. Round to the nearest hundredth of a gram. 65) _____

A) 7.90 g and 8.12 g B) 7.88 g and 8.17 g

C) 8.00 g and 8.02 g D) 7.98 g and 8.04 g

66) The serum cholesterol levels for men in one age group are normally distributed with a mean of 178.1 and a standard deviation of 40.4. All units are in mg/100 mL. Find the two levels that separate the top 9% and the bottom 9%. 66) _____

A) 124.0 mg/100mL and 232.2 mg/100mL B) 165.2 mg/100mL and 191.03 mg/100mL

C) 107.8 mg/100mL and 248.4 mg/100mL D) 161.5 mg/100mL and 194.7 mg/100mL

Assume that X has a normal distribution, and find the indicated probability.

67) The mean is $\mu = 60.0$ and the standard deviation is $\sigma = 4.0$. 67) _____
Find the probability that X is less than 53.0.

A) 0.0802 B) 0.0401 C) 0.9599 D) 0.5589

68) The mean is $\mu = 15.2$ and the standard deviation is $\sigma = 0.9$. 68) _____
Find the probability that X is greater than 15.2.

A) 0.9998 B) 0.5000 C) 0.0003 D) 1.0000

69) The mean is $\mu = 15.2$ and the standard deviation is $\sigma = 0.9$. 69) _____
Find the probability that X is greater than 16.1.

A) 0.1357 B) 0.1550 C) 0.8413 D) 0.1587

70) The mean is $\mu = 15.2$ and the standard deviation is $\sigma = 0.9$. 70) _____
Find the probability that X is greater than 17.

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

71) The mean is $\mu = 15.2$ and the standard deviation is $\sigma = 0.9$. 71) _____
Find the probability that X is between 14.3 and 16.1.

A) 0.8413 B) 0.3413 C) 0.1587 D) 0.6826

72) The mean is $\mu = 22.0$ and the standard deviation is $\sigma = 2.4$. 72) _____
Find the probability that X is between 19.7 and 25.3.
A) 1.0847 B) 0.7477 C) 0.4107 D) 0.3370

73) The mean is $\mu = 137.0$ and the standard deviation is $\sigma = 5.3$. 73) _____
Find the probability that X is between 134.4 and 140.1.
A) 0.8138 B) 0.6242 C) 1.0311 D) 0.4069

Solve the problem.

74) The amount of snowfall falling in a certain mountain range is normally distributed with a mean of 70 inches, and a standard deviation of 10 inches. What is the probability that the mean annual snowfall during 25 randomly picked years will exceed 72.8 inches? 74) _____
A) 0.0808 B) 0.4192 C) 0.5808 D) 0.0026

75) The annual precipitation amounts in a certain mountain range are normally distributed with a mean of 109 inches, and a standard deviation of 10 inches. What is the probability that the mean annual precipitation during 25 randomly picked years will be less than 111.8 inches? 75) _____
A) 0.5808 B) 0.4192 C) 0.0808 D) 0.9192

76) The weights of the fish in a certain lake are normally distributed with a mean of 20 lb and a standard deviation of 9. If 9 fish are randomly selected, what is the probability that the mean weight will be between 17.6 and 23.6 lb? 76) _____
A) 0.4032 B) 0.6730 C) 0.3270 D) 0.0968

77) The scores on a certain test are normally distributed with a mean score of 60 and a standard deviation of 5. What is the probability that a sample of 90 students will have a mean score of at least 60.527? 77) _____
A) 0.3174 B) 0.1587 C) 0.3413 D) 0.8413

78) A bank's loan officer rates applicants for credit. The ratings are normally distributed with a mean of 200 and a standard deviation of 50. If 40 different applicants are randomly selected, find the probability that their mean is above 215. 78) _____
A) 0.4713 B) 0.1179 C) 0.0287 D) 0.3821

79) In one region, the September energy consumption levels for single−family homes are found to be normally distributed with a mean of 1050 kWh and a standard deviation of 218 kWh. If 50 different homes are randomly selected, find the probability that their mean energy consumption level for September is greater than 1075 kWh. 79) _____
A) 0.2090 B) 0.4562 C) 0.0438 D) 0.2910

80) Assume that women's heights are normally distributed with a mean of 63.6 inches and a standard deviation of 2.5 inches. If 90 women are randomly selected, find the probability that they have a mean height between 62.9 inches and 64.0 inches. 80) _____
A) 0.7248 B) 0.1739 C) 0.0424 D) 0.9318

81) Suppose that replacement times for washing machines are normally distributed with a mean of 9.3 years and a standard deviation of 1.1 years. Find the probability that 70 randomly selected washing machines will have a mean replacement time less than 9.1 years. 81) _____
A) 0.4357 B) 0.4286 C) 0.0643 D) 0.0714

82) Human body temperatures are normally distributed with a mean of 98.20°F and a standard deviation of 0.62°F. If 19 people are randomly selected, find the probability that their mean body temperature will be less than 98.50°F. 82) _____

A) 0.4826 B) 0.3343 C) 0.0833 D) 0.9826

83) For women aged 18–24, systolic blood pressures (in mm Hg) are normally distributed with a mean of 114.8 and a standard deviation of 13.1. If 23 women aged 18–24 are randomly selected, find the probability that their mean systolic blood pressure is between 119 and 122. 83) _____

A) 0.0833 B) 0.0577 C) 0.3343 D) 0.9341

84) A study of the amount of time it takes a mechanic to rebuild the transmission for a 2005 Chevrolet Cavalier shows that the mean is 8.4 hours and the standard deviation is 1.8 hours. If 40 mechanics are randomly selected, find the probability that their mean rebuild time exceeds 8.7 hours. 84) _____

A) 0.1469 B) 0.1285 C) 0.1946 D) 0.1346

85) A study of the amount of time it takes a mechanic to rebuild the transmission for a 2005 Chevrolet Cavalier shows that the mean is 8.4 hours and the standard deviation is 1.8 hours. If 40 mechanics are randomly selected, find the probability that their mean rebuild time exceeds 9.1 hours. 85) _____

A) 0.1046 B) 0.0046 C) 0.1285 D) 0.0069

86) A study of the amount of time it takes a mechanic to rebuild the transmission for a 2005 Chevrolet Cavalier shows that the mean is 8.4 hours and the standard deviation is 1.8 hours. If 40 mechanics are randomly selected, find the probability that their mean rebuild time exceeds 7.7 hours. 86) _____

A) 0.9712 B) 0.8531 C) 0.9931 D) 0.9634

87) A study of the amount of time it takes a mechanic to rebuild the transmission for a 2005 Chevrolet Cavalier shows that the mean is 8.4 hours and the standard deviation is 1.8 hours. If 40 mechanics are randomly selected, find the probability that their mean rebuild time exceeds 8.1 hours. 87) _____

A) 0.9146 B) 0.8457 C) 0.8531 D) 0.7285

88) A study of the amount of time it takes a mechanic to rebuild the transmission for a 2005 Chevrolet Cavalier shows that the mean is 8.4 hours and the standard deviation is 1.8 hours. If 40 mechanics are randomly selected, find the probability that their mean rebuild time is less than 7.6 hours. 88) _____

A) 0.0025 B) 0.0036 C) 0.0008 D) 0.0103

89) A study of the amount of time it takes a mechanic to rebuild the transmission for a 2005 Chevrolet Cavalier shows that the mean is 8.4 hours and the standard deviation is 1.8 hours. If 40 mechanics are randomly selected, find the probability that their mean rebuild time is less than 8.9 hours. 89) _____

A) 0.9756 B) 0.9589 C) 0.9608 D) 0.4276

90) A final exam in Math 160 has a mean of 73 with standard deviation 7.8. If 24 students are randomly selected, find the probability that the mean of their test scores is greater than 78. 90) _____

A) 0.8962 B) 0.0103 C) 0.0008 D) 0.0036

91) A final exam in Math 160 has a mean of 73 with standard deviation 7.8. If 24 students are randomly selected, find the probability that the mean of their test scores is greater than 71. 91) _____

A) 0.0008 B) 0.9012 C) 0.5036 D) 0.8962

92) A final exam in Math 160 has a mean of 73 with standard deviation 7.8. If 24 students are randomly selected, find the probability that the mean of their test scores is less than 76. 92) _____

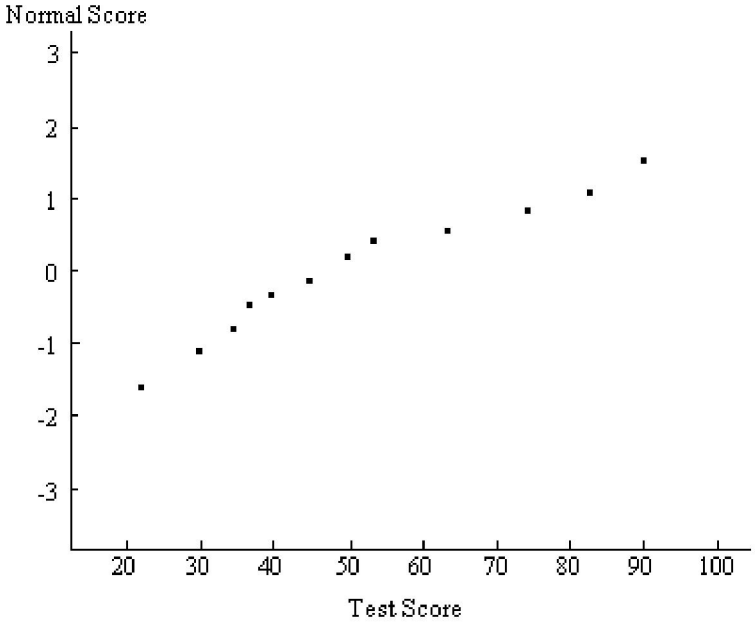
A) 0.9699 B) 0.8962 C) 0.9203 D) 0.0301

93) A final exam in Math 160 has a mean of 73 with standard deviation 7.8. If 24 students are randomly selected, find the probability that the mean of their test scores is less than 70. 93) _____

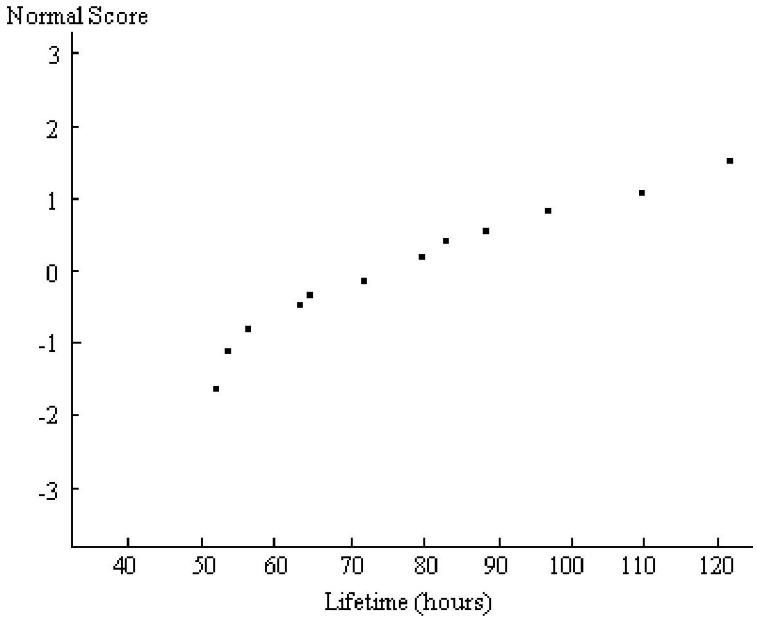
A) 0.1006 B) 0.0301 C) 0.0278 D) 0.9699

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

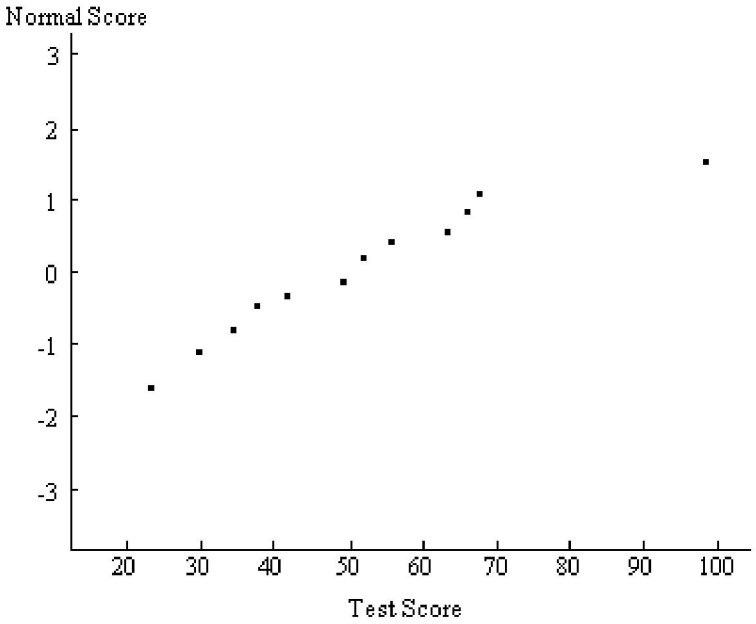
94) A normal quartile plot is given below for a sample of scores on an aptitude test. Use the plot to assess the normality of scores on this test. Explain your reasoning. 94) _____



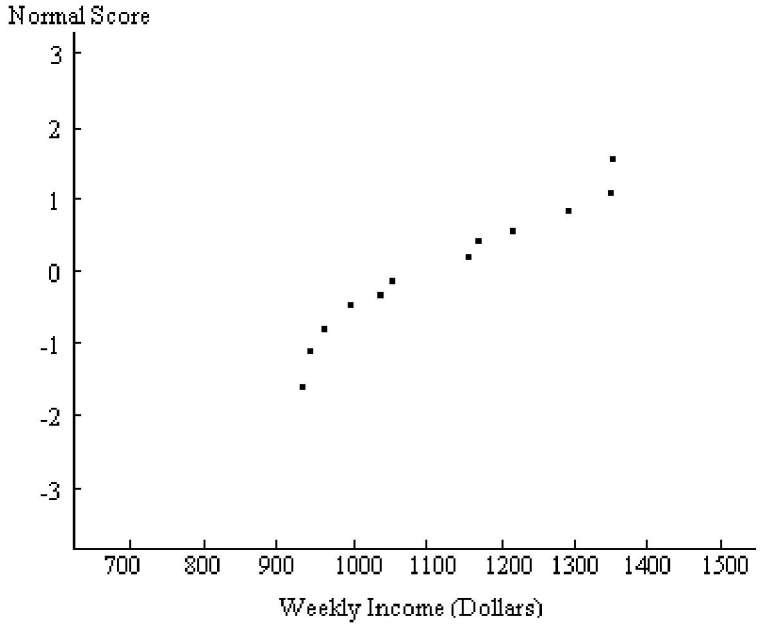
95) A normal quartile plot is given below for the lifetimes (in hours) of a sample of batteries of a particular brand. Use the plot to assess the normality of the lifetimes of these batteries. Explain your reasoning. 95) _____



96) A normal quartile plot is given below for a sample of scores on an aptitude test. Use the plot to assess the normality of scores on this test. Explain your reasoning. 96) _____



97) A normal quartile plot is given below for the weekly incomes (in dollars) of a sample of engineers in one town. Use the plot to assess the normality of the incomes of engineers in this town. Explain your reasoning. 97) _____



Examine the given data set and determine whether the requirement of a normal distribution is satisfied. Assume that the requirement for a normal distribution is loose in the sense that the population distribution need not be exactly normal, but it must have a distribution which is basically symmetric with only one mode. Explain why you do or do not think that the requirement is satisfied.

98) The numbers obtained on 50 rolls of a die. 98) _____

1	5	5	3	6	4	5	6	3	4
2	5	3	5	4	2	1	4	3	1
6	1	2	6	1	2	5	3	3	4
4	1	3	1	6	2	2	5	5	3
3	5	1	6	2	1	1	4	6	5

99) The amount of rainfall (in inches) in 25 consecutive years in a certain city. 99) _____

20.4	25.1	22.8	27.0	23.5
24.2	26.0	25.6	23.3	24.1
21.9	27.6	24.7	25.3	21.6
31.0	23.6	26.1	25.5	24.8
18.1	22.4	24.9	30.0	29.3

100) The ages of 30 students selected randomly from one college are as follows: 100) _____

21	23	20	24	20
19	20	19	22	32
20	24	26	21	37
23	18	34	25	30
22	24	23	19	28
20	29	21	35	25
20	21	28	22	32

101) The heart rates (in beats per minute) of 30 randomly selected students are given below. 101) _____

78	64	69	75	80
63	70	72	72	68
77	71	74	84	70
62	67	71	69	58
74	70	80	63	88
60	68	69	70	71

102) The data below represents the amount of television watched per week (in hours) for 40 randomly selected teenagers. 102) _____

13	4	17	14	9	6	7	5	14	12
20	16	0	15	10	6	5	3	13	14
15	5	3	5	8	11	12	13	14	7
4	6	9	13	3	14	24	15	17	20

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

The given values are discrete. Use the continuity correction and describe the region of the normal distribution that corresponds to the indicated probability.

103) The probability of more than 44 correct answers 103) _____

A) The area to the left of 44.5
B) The area to the right of 43.5
C) The area to the right of 44
D) The area to the right of 44.5

104) The probability of at least 44 boys 104) _____

A) The area to the right of 44
B) The area to the right of 43.5
C) The area to the right of 44.5
D) The area to the left of 43.5

105) The probability of fewer than 43 democrats 105) _____

A) The area to the right of 43.5
B) The area to the left of 43.5
C) The area to the left of 42.5
D) The area to the left of 43

106) The probability of exactly 44 green marbles 106) _____

A) The area between 43.5 and 44
B) The area between 43.5 and 45.5
C) The area between 44 and 44.5
D) The area between 43.5 and 44.5

107) The probability of no more than 35 defective CD's 107) _____

A) The area to the left of 35.5
B) The area to the right of 35.5
C) The area to the left of 35
D) The area to the left of 34.5

108) The probability that the number of correct answers is between 29 and 41 inclusive 108) _____

A) The area between 28.5 and 41.5 B) The area between 29 and 41

C) The area between 28.5 and 40.5 D) The area between 29.5 and 40.5

For the binomial distribution with the given values for n and p, state whether or not it is suitable to use the normal distribution as an approximation.

109) n = 24 and p = 0.6 109) _____

A) Normal approximation is not suitable. B) Normal approximation is suitable.

110) n = 17 and p = 0.8 110) _____

A) Normal approximation is suitable. B) Normal approximation is not suitable.

111) n = 19 and p = 0.5 111) _____

A) Normal approximation is not suitable. B) Normal approximation is suitable.

112) n = 16 and p = 0.2 112) _____

A) Normal approximation is suitable. B) Normal approximation is not suitable.

113) n = 62 and p = 0.7 113) _____

A) Normal approximation is not suitable. B) Normal approximation is suitable.

114) n = 20 and p = 0.9 114) _____

A) Normal approximation is not suitable. B) Normal approximation is suitable.

Estimate the indicated probability by using the normal distribution as an approximation to the binomial distribution.

115) With n = 18 and p = 0.30, estimate P(6). 115) _____

A) 0.8513 B) 0.1239 C) 0.1015 D) 0.1958

116) With n = 20 and p = 0.60, estimate P(fewer than 8). 116) _____

A) 0.4332 B) 0.4953 C) 0.0668 D) 0.0202

117) Estimate the probability of getting exactly 43 boys in 90 births. 117) _____

A) 0.0159 B) 0.0764 C) 0.0729 D) 0.1628

118) A multiple choice test consists of 60 questions. Each question has 4 possible answers of which one is correct. If all answers are random guesses, estimate the probability of getting at least 20% correct. 118) _____

A) 0.8508 B) 0.1492 C) 0.3508 D) 0.0901

119) A certain question on a test is answered correctly by 22% of the respondents. Estimate the probability that among the next 150 responses there will be at most 40 correct answers. 119) _____

A) 0.9306 B) 0.1003 C) 0.0694 D) 0.8997

120) A product is manufactured in batches of 120 and the overall rate of defects is 5%. Estimate the probability that a randomly selected batch contains more than 6 defects. 120) _____

A) 0.4641 B) 0.0832 C) 0.5871 D) 0.4168

121) In one county, the conviction rate for speeding is 85%. Estimate the probability that of the next 100 speeding summonses issued, there will be at least 90 convictions. 121) _____

A) 0.8962 B) 0.0420 C) 0.1038 D) 0.3962

122) The probability that a radish seed will germinate is 0.7. Estimate the probability that of 140 randomly selected seeds, exactly 100 will germinate. 122) _____

A) 0.9331 B) 0.0769 C) 0.0679 D) 0.0669

123) Two percent of hair dryers produced in a certain plant are defective. Estimate the probability that of 10,000 randomly selected hair dryers, exactly 225 are defective. 123) _____

A) 0.0051 B) 0.0034 C) 0.0065 D) 0.0057

124) Two percent of hair dryers produced in a certain plant are defective. Estimate the probability that of 10,000 randomly selected hair dryers, at least 219 are defective. 124) _____

A) 0.0934 B) 0.9066 C) 0.0823 D) 0.0869

Use the normal distribution to approximate the desired probability.

125) A coin is tossed 20 times. A person, who claims to have extrasensory perception, is asked to predict the outcome of each flip in advance. She predicts correctly on 14 tosses. What is the probability of being correct 14 or more times by guessing? Does this probability seem to verify her claim? 125) _____

A) 0.4418, yes B) 0.4418, no C) 0.0582, no D) 0.0582, yes

126) A coin is tossed 20 times. A person, who claims to have extrasensory perception, is asked to predict the outcome of each flip in advance. She predicts correctly on 11 tosses. What is the probability of being correct 11 or more times by guessing? Does this probability seem to verify her claim? 126) _____

A) 0.4129, yes B) 0.4129, no C) 0.0871, yes D) 0.0871, no

127) A coin is tossed 20 times. A person, who claims to have extrasensory perception, is asked to predict the outcome of each flip in advance. She predicts correctly on 16 tosses. What is the probability of being correct 16 or more times by guessing? Does this probability seem to verify her claim? 127) _____

A) 0.0069, no B) 0.0069, yes C) 0.4931, no D) 0.4931, yes

128) Find the probability that in 200 tosses of a fair die, we will obtain at least 40 fives. 128) _____

A) 0.3871 B) 0.1210 C) 0.0871 D) 0.2229

129) Find the probability that in 200 tosses of a fair die, we will obtain at least 30 fives. 129) _____

A) 0.5871 B) 0.6229 C) 0.8871 D) 0.7673

130) Find the probability that in 200 tosses of a fair die, we will obtain at exactly 30 fives. 130) _____

A) 0.0871 B) 0.0619 C) 0.0429 D) 0.1871

131) Find the probability that in 200 tosses of a fair die, we will obtain at most 30 fives. 131) _____

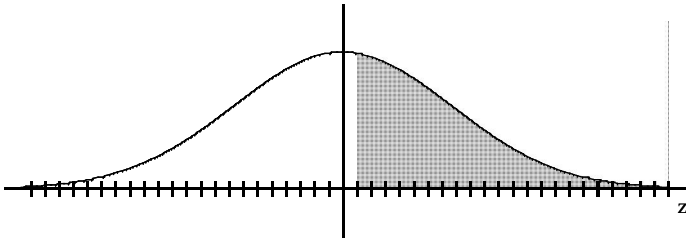
A) 0.2946 B) 0.4936 C) 0.3229 D) 0.1871

132) Merta reports that 74% of its trains are on time. A check of 60 randomly selected trains shows that 38 of them arrived on time. Find the probability that among the 60 trains, 38 or fewer arrive on time. Based on the result, does it seem plausible that the "on–time" rate of 74% could be correct? 132) _____

A) 0.0409, yes B) 0.0316, yes C) 0.0409, no D) 0.0316, no

Find the indicated z score. The graph depicts the standard normal distribution with mean 0 and standard deviation 1.

133) Shaded area is 0.4483. 133) _____



A) 0.6736 B) –0.13 C) 0.13 D) 0.3264

Answer Key
Testname: CH6 EXAM REVIEW

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

51) C
52) B
53) B
54) B
55) D
56) D
57) C
58) C
59) A
60) B
61) B
62) D
63) A
64) C
65) A
66) A
67) B
68) B
69) D
70) C
71) D
72) B
73) D
74) A
75) D
76) B
77) B
78) C
79) A
80) D
81) C
82) D
83) B
84) A
85) D
86) C
87) C
88) A
89) C
90) C
91) D
92) A
93) B
94) Since the normal quartile plot is roughly linear, it appears that scores on this test are approximately normally distributed.
95) Since the normal quartile plot displays curvature, it appears that lifetimes of these batteries are probably not normally distributed.
96) Since the normal quartile plot is roughly linear, it appears that scores on this test are approximately normally distributed.

97) Since the normal quartile plot displays curvature, it appears that incomes of engineers in this town are probably not normally distributed.
98) The requirement for normality is not satisfied since a histogram of the data is not roughly bell shaped with a single mode. The data are roughly uniformly distributed.
99) The requirement for normality is satisfied since a histogram of the data is roughly bell shaped; it is roughly symmetric with a single mode.
100) The requirement for normality is not satisfied since a histogram of the data is not bell shaped. The data does have a single mode, however the histogram is not symmetric but is skewed to the right.
101) The requirement for normality is satisfied since a histogram of the data is roughly bell shaped; it is roughly symmetric with a single mode.
102) The requirement for normality is not satisfied since a histogram of the data is not bell shaped; it is actually bimodal.
103) D
104) B
105) C
106) D
107) A
108) A
109) B
110) B
111) B
112) B
113) B
114) A
115) D
116) D
117) B
118) A
119) A
120) D
121) C
122) D
123) D
124) A
125) C
126) B
127) B
128) B
129) D
130) B
131) A
132) C
133) C