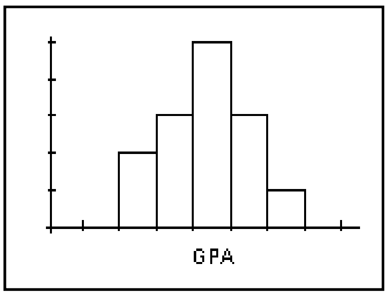
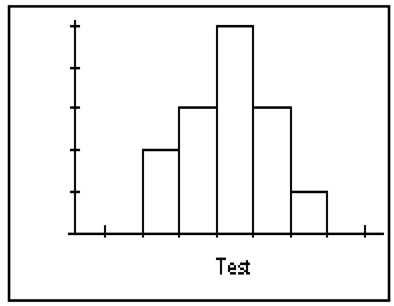
1. The director of admissions in a small college administered a newly designed entrance test to 100 students selected at random from the new freshman class. The purpose of this study was to determine whether students' grade point average (GPA) at the end of the freshman year can be predicted from the entrance test score. At the end of the year when all the paired data are available, what would be the graph you would use to display the paired data to assess any predictive capability? Select ONE of the five graphs below.

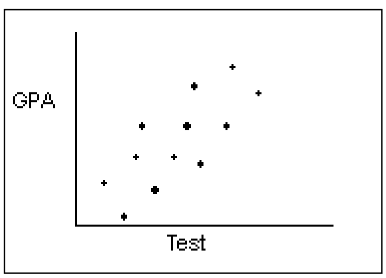
a)



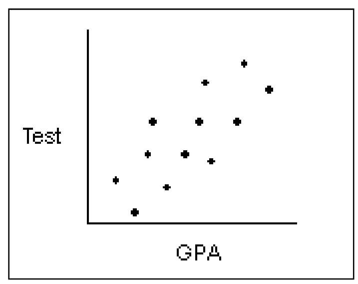
b)



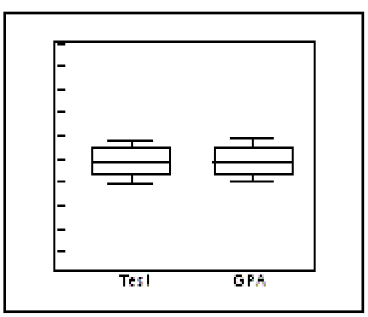
c)



d)



e)



2. If the graph of a distribution of data shows that the graph is skewed to the right, then typically the
   a. Mean > Median
   b. Mean = Median
   c. Mean < Median
   d. Mean does not exist.

3. Sara took the ACT and Jerry took the SAT. The mean score on the mathematics part of the ACT is 21.0, with a standard deviation of 5.3. Sara's score on the exam was 27. The mean score on the mathematics part of the SAT is 514, with a standard deviation of 117. Jerry's score was 612. This information is summarized in the table below. Who did better: Sara or Jerry? Select the best answer below.

	Mean	**Standard Deviation**	**Student's Name**	**Student's Score**
ACT	**21.0**	**5.3**	**Sara**	**27**
SAT	**514**	**117**	**Jerry**	**612**

   a. Jerry did better because his score is higher than Sara's score.
   b. Jerry did better because he scored 98 points higher than the mean while Sara only scored 6 points higher than the mean.
   c. Sara scored better because her z-score is higher than Jerry's z-score.
   d. Sara scored better because the standard deviation on the ACT is smaller than the standard deviation on the SAT.

4. A company announced a "1000 Chips Trial," claiming that every 18-ounce bag of its cookies contained at least 1000 chocolate chips. Ten students purchased random bags of cookies from different stores and counted the number of chips in each bag. The data is shown below. Assume the distribution of the number of chips per bag follows an approximate normal distribution.

   1027 1184 1122 1261 1262 1380 1278 1386 1205 1424

   Create a 95% confidence interval for the average number of chips per bag.
   a. (1175.8, 1330.0)
   b. (1164.0, 1341.8)
   c. (971.7, 1534.1)
   d. (1223.3, 1282.5)

5. A medical researcher measured the pulse rates (beats per minute) of a sample of randomly selected adults and found the following 95% confidence interval: $\mathbf{65.4 < \mu(Pulse) < 71.5}$

   Select the answer that best explains the meaning of the confidence interval.
   a. We are confident that 95% of all pulse rates will have a mean rate between 65.4 and 71.5 beats per minute.
   b. We are confident that 95% of the pulse rates will be between 65.4 and 71.5 beats per minute.
   c. We are 95% confident the interval 65.4 to 71.5 beats per minute contains the true mean heart rate.
   d. None of the above.

6. A magazine is considering the launch of an online edition. The magazine plans to go ahead only if there is overwhelming evidence that more than 20% of current readers would subscribe. The magazine obtained a simple random sample of 400 current readers, and 84 of those surveyed said they would subscribe. Let p denote the proportion of all current readers who would subscribe to the online edition.

   State the null and alternative hypotheses. Choose the correct answer below.
   a. H_0: $p = 0.2$
      H_a: $p > 0.2$
   b. H_0: $p = 0.2$
      H_a: $p < 0.2$
   c. H_0: $p = 0.2$
      H_a: $p \neq 0.2$
   d. None of the above

7. A political strategist believes that less than 56% of voters in a certain state support a particular issue. He then commissions a poll of 600 voters and 52% of them support this issue. Using $\alpha = .05$, is the political strategist's belief warranted by sufficient statistical evidence?
   a. Yes, because the test statistic value -1.97 is in the critical region.
   b. No, because the test statistic value -2.16 is in the non-critical region.
   c. Yes, because the test statistic value 1.96 is in the critical region.
   d. No, because the test statistic value 1.97 is in the critical region.

8. A university dean is interested in determining the proportion of students who receive some sort of financial aid. Rather than examine the records for all students, the dean randomly selects 200 students and finds that 118 of them are receiving financial aid. Use a large-sample 95% confidence interval to estimate the true proportion of students on financial aid.
   a. $.59 \pm .068$
   b. $.59 \pm .045$
   c. $.59 \pm .057$
   d. $.59 \pm .071$

9. Suppose a particular outcome from a random event has a probability of 0.02. Which of the following statements represent correct interpretations of this probability?
   a. The outcome will never happen.
   b. The outcome will certainly happen two times out of every 100 trials.
   c. The outcome is expected to happen about two times out of every 100 trials.
   d. The outcome could happen, or it couldn't, the chances of either result are the same.

10. Imagine that there are 100 different researchers each studying the sleeping habits of college freshmen. Each researcher takes a random sample of size 50 from the same population of freshmen. Each researcher is trying to estimate the mean hours of sleep that freshmen get at night, and each one constructs a 95% confidence interval for the mean. Approximately how many of these 100 confidence intervals will <u>NOT</u> capture the true mean?
    a. None
    b. 1 or 2
    c. 3 to 7
    d. About half
    e. 95 to 100

11. Electric power plants that use water for cooling their condensers sometimes discharge heated water into rivers, lakes, or oceans. It is known that water heated above certain temperatures has a detrimental effect on the plant and animal life in the water. Suppose it is known that the increased temperature of the heated water discharged by a certain power plant on any given day has a distribution with a mean of 5°C and a standard deviation of 5°C. If the temperature is randomly sampled on n=50 days at this plant, what is the approximate probability that the average increase in temperature of the discharged water is greater than 7°C?

    a. .0023
    b. .4977
    c. .1554
    d. .3446

12. To help consumers assess the risks they are taking, the Food and Drug Administration (FDA) publishes the amount of nicotine found in all commercial brands of cigarettes. A new cigarette has recently been marketed. The FDA tests on this cigarette gave a mean nicotine content of 26.4 milligrams and standard deviation of 2.0 milligrams for a sample of n=9 cigarettes. Assuming a normal distribution for nicotine content, construct an approximate 90% confidence interval for the mean nicotine content of this brand of cigarette.
    a. (25.303. 27.497)
    b. (35.478, 27.322)
    c. (25.160, 27.640)
    d. (25.178, 27.622)

13. The amount of money collected by the snack bar at a large university has been recorded daily for the past five years. Records indicate that the mean daily amount collected is $2,500 and the standard deviation is $400. The distribution is skewed to the right due to several high volume days (football game days). Suppose that 100 days were randomly selected from the five years and the average amount collected from those days was recorded. Which of the following describes the sampling distribution of the sample mean?

    a. Approximately normally distributed with a mean of $2,500 and a standard deviation of $400.
    b. Approximately normally distributed with a mean of $250 and a standard deviation of $40.
    c. Approximately normally distributed with a mean of $2,500 and a standard deviation of $40.
    d. Skewed to the right with a mean of $2,500 and a standard deviation of $400.

14. Earthquake intensities are measured using a device called a seismograph, which is designed to be most sensitive for earthquakes with intensities between 4.0 and 9.0 on the open-ended Richter scale. Measurements of nine earthquakes gave the following readings

    4.5 L 5.5 H 8.7 8.9 6.0 H 5.2

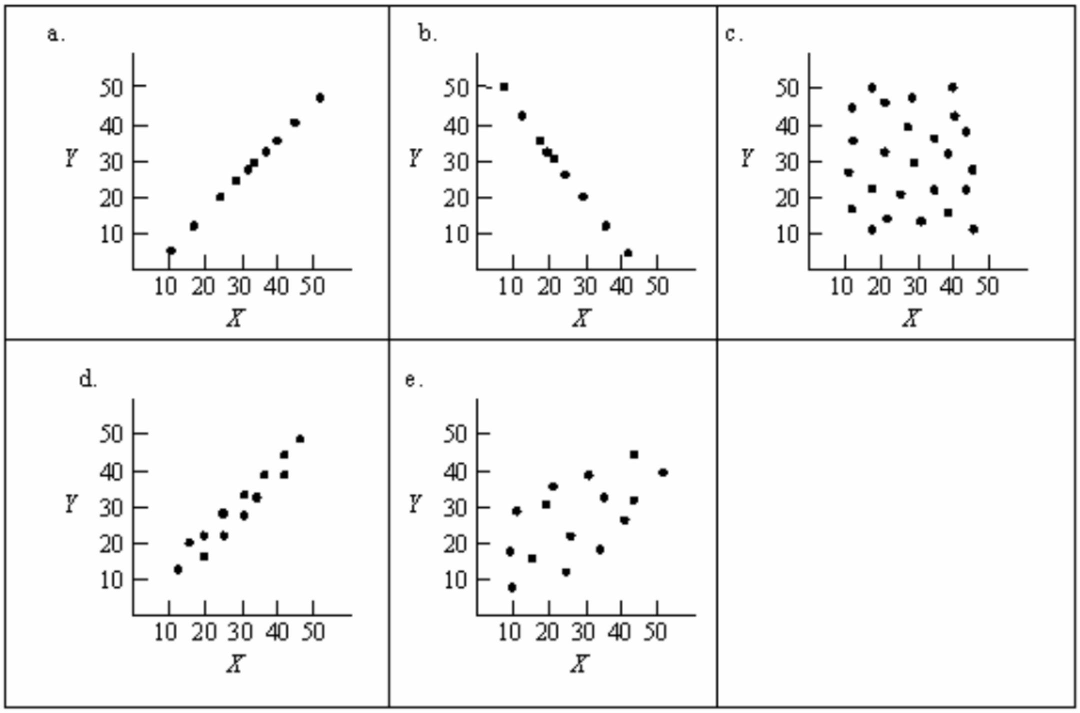
    where L indicates that the earthquake had an intensity below 4.0 and H indicates that the earthquake had an intensity above 9.0. The median earthquake intensity of the sample is

    a. Cannot be computed since all of the values are not known
    b. 8.70
    c. 5.75
    d. 6.00

15. According to government data, the probability that an adult was never in a museum is 15%. In a random survey of 10 adults, what is the probability that two or fewer were never in a museum?
    a. .820
    b. .002
    c. .800
    d. .200

16. In hypothesis testing, if the p-value is less than or equal to α (the significance level of the test), then
    a. We have sufficient evidence to reject H_o.
    b. We do <u>not</u> have sufficient evidence to reject H_o.
    c. We have committed a Type I error.
    d. We have committed a Type II error.

17. Select the scatterplot below that shows a correlation of -1.



18. A recent survey indicated that the national average amount spent for breakfast by business managers was \$7.58. It was felt that breakfasts on the West Coast were higher than \$7.58. A sample of 81 business managers on the West Coast had an average breakfast cost of \$7.65 with a standard deviation of \$0.42.

Give the p-value for the data provided above.

a. 0.4987
b. 0.0084
c. 0.1325
d. 0.0688

19. The campus bookstore asked a random set of freshmen and seniors as to how much they spent on textbooks in that term. The bookstore believes that the two groups spend the same amount. What is the value of the test statistic for testing $\mu_1 - \mu_2 = 0$?

		Freshmen	**Seniors**
Sample size	n	50	70
Mean spending	$\bar{x}$	40	45
Sample deviation	s	$\sqrt{500}$	$\sqrt{800}$

a. -0.23
b. 4.63
c. -1.08
d. -1.60

20. Which of the following represents a binomial random variable?

a. Let W = the number of computer solitaire games you play before you first win.
b. Let X = the time you wait in line at a convenience store each time you visit.
c. Let Y = the number of citizens in a sample of the community who favor building a health center.
d. Let Z = the sum obtained on a roll of a pair of dice.

21. Two methods of teaching reading to first graders are being compared. Independent random samples provided the following reading score data.

Method 1	Method 2
$\bar{X}_1 = 72.5$	$\bar{X}_2 = 65.7$
$S_1 = 12.6$	$S_2 = 10.3$
$n_1 = 45$	$n_2 = 33$

Let μ_1 = method 1 population mean reading score; μ_2 = method 2 population mean reading score.
A 95% confidence interval for μ_1 - μ_2 gives the interval (1.63, 11.97). We are very confident that

a. Method 1 is more effective for teaching reading to first graders.
b. Method 2 is more effective for teaching reading to first graders.
c. There is no difference between Method 1 and Method 2 for teaching reading to first graders.
d. We need to do a hypothesis test to determine if Method 1 or Method 2 is more effective for teaching reading to first graders.

22. The length of time it takes college students to find a parking spot in the library parking lot follows a normal distribution with a mean of 3.5 minutes and a standard deviation of 1 minute. Find the probability that a randomly selected college student will take between 2 and 4.5 minutes to find a parking spot in the library lot.

a. .4938
b. .0919
c. .2255
d. .7745

23. A hypothesis test is used to test whether a machine is significantly under-filling or over-filling 2L bottles of soda. On the basis of data from a random sample, the null hypothesis is rejected and the machine is shut down for inspection. A thorough examination reveals there is nothing wrong with the filling machine. <u>From a statistical point of view</u>, upon rejecting the null hypothesis . . .

a. A Type I and Type II error were made.
b. A Type I error was made.
c. A Type II error was made.

24. The Central Limit Theorem is important in statistics because _____________.

a. For a large *n*, it says the population is approximately normal.
b. For any population, it says the sampling distribution of the sample mean is approximately normal, regardless of the sample size.
c. For a large *n*, it says the sampling distribution of the sample mean is approximately normal, regardless of the population.
d. For any size sample, it says the sampling distribution of the sample mean is approximately normal.

25. In the construction of confidence intervals, if all other quantities are unchanged, an increase in the sample size will lead to a ________________ interval.

a. narrower
b. wider
c. less significant
d. biased

26. A recent survey reported that in a sample of 300 students who attend two-year colleges, 105 work at least 20 hours per week. In a sample of 225 students attending private universities, only 60 students work at least 20 hours per week.

    What is the p-value to test that two-year college student work at a higher rate than students at private universities?
    a. 0.05
    b. 0.01
    c. 0.02
    d. 0.98

27. A graduate student is designing a research study. She is hoping to show that the results of an experiment are statistically significant. What p-value would she want to obtain?
    a. a large p-value
    b. a small p-value

28. A survey of 275 county workers was taken to study the relationship between education level and job satisfaction. The results of the survey are shown in the table below. What proportion of the county workers surveyed had taken **<u>at least one</u>** college course?

Education Level		**Never Graduated High School**	**High School Graduate**	**Some College**	**College Graduate**	**Advanced Degree**	**TOTAL**
Job Satisfaction	**Satisfied**	10	50	25	75	40	200
	Not Satisfied	20	25	15	10	5	75
TOTAL		30	75	40	85	45	275

a. 40/275
b. 125/275
c. 170/275
d. 85/275

29. Refer to the table given above showing the survey of county workers to answer the following question: Given that the employee has an advanced degree, what is the probability that he/she is satisfied?
    a. 5/45
    b. 40/200
    c. 5/75
    d. 40/45

30. The relation between the selling price of a car (in $1000) and its age (in years) is estimated from a random sample of cars of a specific mode. The relation is given by the following formula:

    Selling Price = 24.2 – (1.182) Age

    Which of the following can be concluded from this equation?
    a. For every year the car gets older, the selling price drops by approximately $2420.
    b. For every $1000 dollars that the car price decreases, the car gets older by 1.182 years.
    c. For every $1000 dollars that the car price decreases, the car gets older by 2.42 years.
    d. For every year the car gets older, the selling price drops by approximately $1182.

31. The boxplot below indicates that the distribution of the data from which it was made has most likely

(a) a distribution skewed to the right and a median larger than the mean
(b) a distribution skewed to the right and a mean larger than the median
(c) a distribution skewed to the left and a median larger than the mean
(d) a distribution skewed to the left and a mean larger than the median
(e) a distribution that is symmetric

32. The amount of television viewed by today's youth is of primary concern to Parents Against Watching Television (PAWT). 300 parents of elementary school-aged children were asked to estimate the number of hours per week that their child watched television. The mean and the standard deviation for their responses were 16 and 4, respectively. PAWT constructed a stem-and-leaf display for the data that showed that the distribution of times was a bell-shaped distribution. Give an interval around the mean where you believe most (approximately 95%) of the television viewing times fell in the distribution.

(a) Between 8 and 24 hours per week
(b) Less than 12 and more than 20 hours per week
(c) Between 4 and 28 hours per week
(d) Between 12 and 20 hours per week

33. A severe drought affected several western states for 3 years. A Christmas tree farmer is worried about the drought's effect on the size of his trees. To decide whether the growth of the trees has been retarded, the farmer decides to take a sample of the heights of 25 tress and obtains the following results (recorded in inches):

60	57	62	69	46	54	64	60	59	58	75	51	49
67	65	44	58	55	48	62	63	73	52	55	50	

The tree farmer feels the normal height of a tree that was unaffected by the drought would be 65 inches. Find the z-score for a tree that is 65 inches tall.

(a) $z = .98$ (b) $z = .77$ (c) $z = -.77$ (d) $z = .84$

34. Given the following stem and leaf plot of 31 test scores, find the 5-number summary (leaf= 1.0).

4	4 8
5	1 3 9
6	1 4 5 6
7	0 2 2 4 7 8 8
8	0 1 1 3 5 5 6 8 8
9	0 2 4 4 6 8

(a) min = 44, Q1 = 64, median=70, Q3=88, max=98
(b) min = 44, Q1 = 65, median=78, Q3=88, max=98
(c) min = 44, Q1 = 66, median=78, Q3=90, max=98
(d) min = 44, Q1 = 65, median=80, Q3=86, max=98
(e) min = 44, Q1 = 65, median=80, Q3=90, max=98

35. The data below are the final exam scores of 10 randomly selected history students and the number of hours they slept the night before the exam. Find the equation of the regression line for the given data. What would be the predicted score for a history student who slept 7 hours the previous night? Is this a reasonable question? Round your answers to the nearest whole number.

Hours, x	3	5	2	8	2	4	4	5	6	3
Scores, y	65	80	60	88	66	78	85	90	90	71

(a) $\hat{y} = 5.044x + 56.11; 91$; Yes, it is reasonable.
(b) $\hat{y} = 5.044x + 56.11; 91$; No, it is not reasonable. 7 hours is well outside the scope of the model.
(c) $\hat{y} = -5.044x + 56.11; 21$; No, it is not reasonale. 7 hours is well outside the scope of the model.
(d) $\hat{y} = -5.044x + 56.11; 21$; Yes, it is reasonable.

36. We are interested in comparing the average supermarket prices of two leading colas in the Tampa area. Our sample was taken by randomly going to each of eight supermarkets and recording the price of a six-pack of cola of each brand. The data are shown in the following table:

		Price	
Supermarket	Brand 1	Brand 2	Difference
1	$2.25	$2.30	$-0.05
2	2.47	2.45	0.02
3	2.38	2.44	-0.06
4	2.27	2.29	-0.02
5	2.15	2.25	-0.10
6	2.25	2.25	0.00
7	2.36	2.42	-0.06
8	2.37	2.40	-0.03

Find a 95% confidence interval for $\mu_\alpha = \mu_1 - \mu_2$

(a) $-.0375 \pm .0318$
(b) $-.0375 \pm .0471$
(c) $-.0375 \pm .0235$
(d) $-.0375 \pm .0404$

37. Which of the following would be a correct interpretation of this interval?
(a) We are 95% confident that brand 2 is more expensive than brand 1.
(b) We are 95% confident that brand 1 is more expensive than brand 2.
(c) We are 95% confident that the brands' average cost is equal.

38. An investigator suspects that the proportion, *p*, of MTSU students that own a computer is close to .40. What sample size is needed to find an interval estimate of *p* that has a .03 margin of error and a 95% confidence level? (Use .40 as a preliminary estimate of *p*).
(a) 1,170
(b) 1,083
(c) 1,025
(d) 722
(e) 637

39. Listed below is an ordered random sample of 30 final grades of students in courses taught by a University of Tennessee professor.

58	58	62	65	66	68	69	71	75	76	78	78	79	79	79
80	80	80	81	83	84	86	88	88	89	90	92	92	94	99

Find the mean and standard deviation.

(a) $\bar{x} = 79.5, s = 10.65$
(b) $\bar{x} = 79.5, s = 3.26$
(c) $\bar{x} = 78.9, s = 113.42$
(d) $\bar{x} = 78.9, s = 10.65$

40. A machine that fills milk bottles is supposed to have a mean amount of milk equal to 32 ounces. An inspector suspects that the true mean is less than 32 ounces. If a statistical hypothesis test is to be performed, how should the hypothesis be stated? Let μ represent the true mean amount of milk.

(a) $H_0: \mu < 32 \;\; vs. \;\; H_1: \mu = 32$
(b) $H_0: \mu > 32 \;\; vs. \;\; H_1: \mu \leq 32$
(c) $H_0: \mu = 32 \;\; vs. \;\; H_1: \mu < 32$
(d) $H_0: \mu = 32 \;\; vs. \;\; H_1: \mu > 32$
(e) $H_0: \mu \neq 32 \;\; vs. \;\; H_1: \mu = 32$

41. The probability that an individual has 20-20 vision is 0.17. In a class of 80 students, what is the mean and standard deviation of the number with 20-20 vision in the class?

(a) $\mu = 13.6, \sigma = 11.29$
(b) $\mu = 80, \sigma = 3.36$
(c) $\mu = 80, \sigma = 11.29$
(d) $\mu = 13.6, \sigma = 3.36$

42. The owner of a Get-A-Away Travel has recently surveyed a random sample of 250 customers of the agency. He would like to determine whether or not the mean age of the agency customers is over 25. If so, he plans to alter the destination of their special cruises & tours. If not, no changes will be made. The appropriate hypotheses are $H_0: \mu = 25, H_a: \mu > 25$. If he concludes the mean age is over 25 when it is not, he makes a _______ error. If he concludes the mean is not over 25 when it is, he makes a _______ error.

(a) Type I; Type II
(b) Type II; Type II
(c) Type I; Type I
(d) Type II; Type I

43. An insurance company states that their claim office is able to process all death claims within 5 working days. Recently there have been several complaints that it took longer than 5 days to process a claim. Top management wants to make sure that the situation is status quo and sets up a statistical test with a null hypothesis that the average time for processing a claim is 5 days, and an alternative hypothesis that the average time for processing a claim is greater than 5 days. After completing the statistical test it is concluded that the average exceeds 5 days. However, it is eventually learned that the mean process time is really 5 days. What type of error occurred in the statistical test?

(a) Type III error
(b) Type I error
(c) Type II error
(d) Cannot determine without the test statistic and the value of α

44. The Central Limit Theorem says the sampling distribution of the sample mean is approximately normal under certain conditions. Which of the following is a necessary condition for the Central Limit Theorem to be used?
    (a) The population from which we are sampling must be normally distributed.
    (b) The sample size must be large (e.g., at least 30).
    (c) The population size must be large (e.g., at least 30).
    (d) The population from which we are sampling must not be normally distributed.

45. For air travelers, one of the biggest complaints is of the waiting time between when the airplane taxis away from the terminal until the flight takes off. This waiting time is known to have a skewed right distribution with a mean of 10 minutes and a standard deviation of 8 minutes. Suppose 100 flights have randomly been sampled. Describe the sampling distribution of the mean waiting time between when the airplane taxis away from the terminal until the flight takes off for theses 100 flights.
    (a) Distribution skewed right, Mean= 10 min., Standard deviation= .8 min.
    (b) Distribution skewed right, Mean= 10 min., Standard deviation= 8 min.
    (c) Distribution approximately normal, Mean= 10 min., Standard deviation= 8 min.
    (d) Distribution approximately normal, Mean= 10 min., Standard deviation= .8 min.

46. The average score of all pro golfers for a particular course has a mean of 70 and a standard deviation of 3.0. Suppose 36 golfers played the course today. Find the probability that the average score of the 36 golfers exceeded 71.
    (a) .1293
    (b) .4772
    (c) .3707
    (d) .0228

47. We intend to estimate the average driving time of Chicago commuters. From data sampled previously, we believe that the average time is 42 minutes with a standard deviation of 12 minutes. We want our 95% confidence interval to have a margin of error of no more than plus or minus 2 minutes. How large a sample do we need?
    (a) 34
    (b) 71
    (c) 139
    (d) 277
    (e) 33

48. Which of the following distributions are valid discrete probability distributions?

1.

X	0	1	2
$p(X)$	.2	.3	.4

3.

X	0	1	2
$p(X)$	.3	.4	.3

2.

X	0	1/2	1
$p(X)$	.5	-.2	.7

4.

X	0	1/2	1
$p(X)$	.7	.3	0

(a) All are valid.
(b) 3 only
(c) 1 and 3 only
(d) 2 and 3 only
(e) 3 and 4 only

49. A recent survey conducted for the College of Business Administration (COBA) at the University of Texas revealed that only 25% of the COBA undergraduates read a business publication (Wall Street Journal, Fortune, Money Magazine, etc.) with any regularity. Supposed we sampled twenty undergraduates to determine how accurate this 25% value might be.

Find the probability that exactly one of the 20 COBA undergraduates sampled reads a business publication with any regularity.

(a) .0211
(b) .0025
(c) .9787
(d) .0075

50. In #49 above, how many of the 20 COBA undergraduates do we expect to read a business publication with any regularity?

(a) .25
(b) 5
(c) 15
(d) 20

51. A senator wishes to estimate the proportion of United States voters who favor abolishing the Electoral College. How large a sample is needed in order to be 98% confident that the sample proportion will not differ from the true proportion by more than 5%?

(a) 385
(b) 12
(c) 1086
(d) 543

52. Consider the discrete probability distribution to the right when answering the following question. Find the probability that x equals 4.

x	2	4	7	9
$P(x)$	0.05	?	0.13	0.14

(a) .32
(b) 2.72
(c) 1.28
(d) .68

53. The grade point averages for 10 randomly selected students in an algebra class with 125 students are listed below. What is the effect on the width of the confidence interval if the sample size is increased to 20?

2.0 3.2 1.8 2.9 0.9 4.0 3.3 2.9 3.6 0.8

(a) The width decreases.
(b) The width increases.
(c) The width remains the same.
(d) It is impossible to tell without more information.

54. Find the z-scores for which 98% of the distribution's area lies within –*z* and *z*.

(a) (-1.645, 1.645)
(b) (-2.33, 2.33)
(c) (-1.96, 1.96)

55. According to the Federal Communications Commission, 70% of all U.S. households have VCRs. In a random sample of 15 households, what is the probability that the number of households with VCRs is between 10 and 12, inclusive?
    (a) .4053
    (b) .7
    (c) .2061
    (d) .5947

56. The amount of corn chips dispensed into a 12-ounce bag by the dispensing machine has been identified as possessing a normal distribution with a mean of 12.5 ounces and a standard deviation of 0.2 ounce. What chip amount represents the 67th percentile for the bag weight distribution?
    (a) 12.09
    (b) 12.59
    (c) 12.13
    (d) 12.65

57. Use the standard normal distribution to find $P(-2.25 < z < 1.25)$.
    (a) .0122
    (b) .4878
    (c) .7944
    (d) .8822

58. The margin of error of a confidence interval for the population mean is:
    (a) $z\frac{\sigma}{\sqrt{n}}$
    (b) z
    (c) $\bar{x}$
    (d) $\frac{\sigma}{\sqrt{n}}$

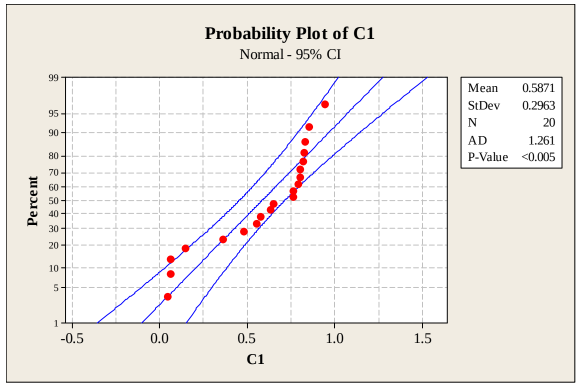
59. The cell phone conversations of a random sample of 50 students have a standard deviation of 9.7 minutes. Find the margin of error, E, using a 90% confidence interval.
    (a) 2.26
    (b) .32
    (c) 1.37
    (d) 1.23

60. A physical fitness association is including the mile run in its secondary-school fitness test for boys. The time for this event for boys in secondary school is known to possess a normal distribution with a mean of 450 seconds and a standard deviation of 50 seconds.

    Find the probability that a randomly selected boy in secondary school can run the mile in less than 370 seconds.

    (a) .4452
    (b) .9452
    (c) .0548
    (d) .5548

61. The graph to the right is a normal probability plot (q-q plot) of a data set. What can we conclude from this plot?



a. Since the dots are in a line, the data set is normally distributed.
b. Since the dots are in a line, the data set is not normally distributed.
c. Since the dots are not in a line, the data set is normally distributed.
d. Since the dots are not in a line, the data set is not normally distributed.