Math 1530 Final Exam
December 12, 2009

Name _____
Section # _____
Instructor _____

There are five possible responses to each of the following multiple choice questions. There is only one "BEST" answer. Be sure to read all possible choices before selecting your answer. You may mark on this examination. You may use a calculator but a calculator manual cannot be used.

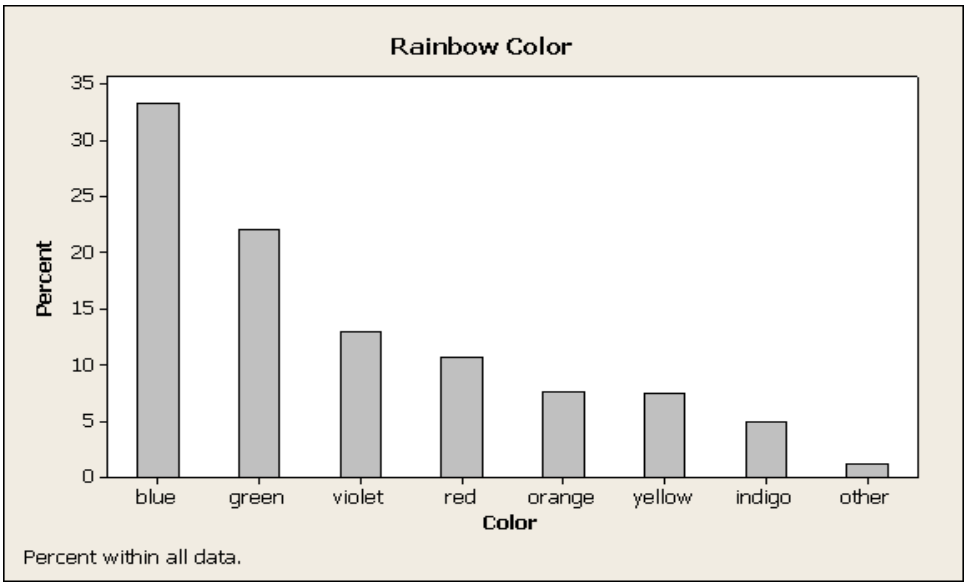
FORM A

1. Which of these questions from the class survey produced variables that are quantitative?

   i. Are you Male or Female?
   ii. Do you live on campus?
   iii. What is favorite color of the rainbow?
   iv. How tall are you?
   v. How many siblings do have?
   vi. Your favorite genre of film.
   vii. Randomly pick a number from 1 to 10.

   (A) i, ii, iii, vi (B) vii only (C) iv, v, vii (D) All variables are categorical. (E) All variables are quantitative.

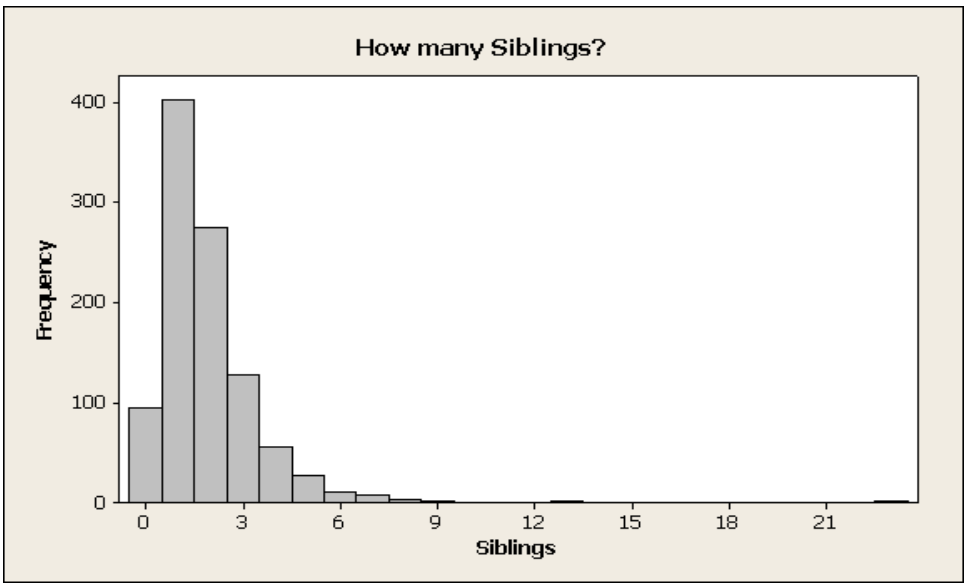
   Use the following for the next 2 questions. The bar graph below gives the distribution of favorite color of the rainbow from the class survey.



2. Approximately what percent of the students chose red as their favorite rainbow color?
   (A) 10% (B) 1% (C) 13% (D) 7% (E) 90%

3. Which of the following is a true statement?
   (A) The bar graph is skewed to the right.
   (B) It appears that blue is the favorite color of the rainbow.
   (C) The bar graph is skewed to the left.
   (D) The center is located between red and orange.
   (E) The data cannot be displayed by a pie chart.

Use the following for the next 3 questions. The figure below is a histogram summarizing the responses given by 1004 students from the class survey to the question asking how many siblings they have.

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Descriptive Statistics: Siblings

Variable     N  N*    Mean  SE Mean   StDev  Minimum      Q1  Median      Q3
Siblings  1004   0  1.8596   0.0489  1.5503   0.0000  1.0000  2.0000  2.0000

Variable  Maximum     IQR
Siblings  23.0000  1.0000
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4. Which of the following best describes the shape of the distribution?
   (A) Who: 1004 individuals, What: number of siblings (quantitative variable)
   (B) The mean is 1.86.
   (C) The data seems to be somewhat symmetric.
   (D) There is an outlier and it is 23.
   (E) The data are skewed to the right with at least one outlier.

5. Which of the following numerical measures should be used to describe this data?
   (A) $\bar{x} = 1.8596, s = 1.5503$
   (B) Min = 0, $Q_1 = 1$, Median = 2, $Q_3 = 2$, Max = 23
   (C) Median = 2, $\bar{x} = 1.8596$
   (D) Median = 2, $s = 1.5503$
   (E) Min = 0, $Q_1 = 1$, $\bar{x} = 1.8596$, $Q_3 = 2$, Max = 23

6. About what percent of the students do not have any siblings?
   (A) 100% (B) 40% (C) 10% (D) 0% (E) 90%

Use the following for the next 2 questions. From the class survey a sample of 9 students who responded to "Randomly Pick a Number from 1 to 10" was taken. The data are

4 2 1 8 3 5 7 7 7

7. What is the median value of this data?
   (A) 3 (B) 4 (C) 4.89 (D) 5 (E) 4.4

8. What is the mean value of this data?
   (A) 5 (B) 3 (C) 4.4 (D) 4 (E) 4.89

9. Would it be more desirable for variability to be high or low for each of the following cases? (a) Age of trees in a national forest, (b) Diameter (all the same size and type) of new tires coming off one production line, (c) Daily sugar levels of a diabetic person, (d) Weight of cereal boxes of the same brand and size.

   (A) high variability: d; low variability: a,b,c (C) high variability: a,d; low variability: b,c

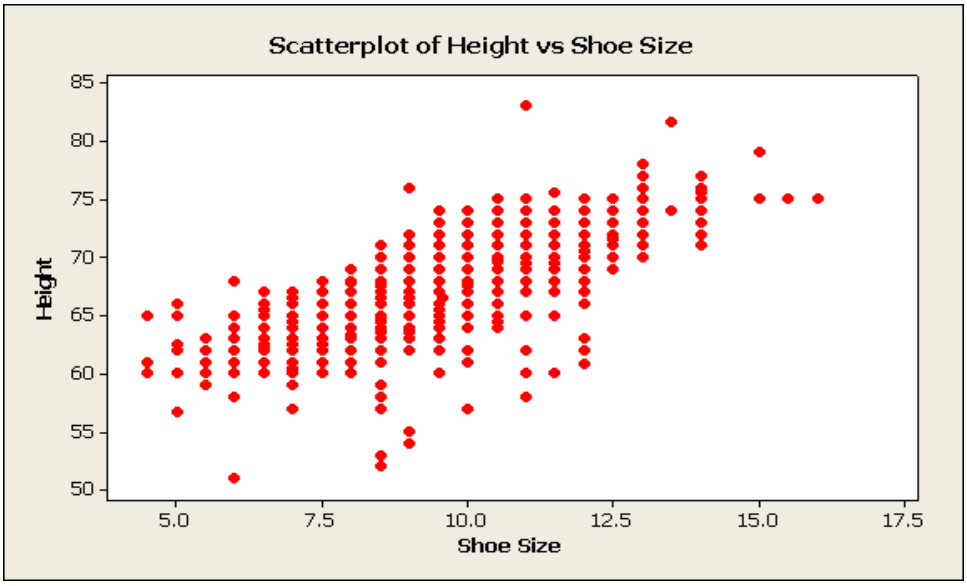
   (B) high variability: a; low variability: b,c,d (D) high variability: b,c,d; low variability: a

   (E) high variability: c; low variability: a,b,d

Use the following for the next 3 questions. Can we predict the height (in inches) of a student by knowing their shoe size? The observations and least-squares regression line appear in the scatterplot. The correlation between the two variables is $r = 0.792$ and the least-squares regression line for predicting the *Height* (in inches) of a student and their *Shoe Size* is

$$\texttt{Height} = 51.3 + 1.71 \times \texttt{Shoe Size}$$

.



10. Which of the following best describes the relationship between shoe size and height?

    (A) There seems to be a negative linear relationship between shoe size and height.
    (B) The association is very weak between shoe size and height.
    (C) It does not make any sense to fit a regression model sinze the shoe size only takes on a few values.
    (D) There seems to be a positive linear relationship between shoe size and height.
    (E) The average height is around 68 inches and the average shoe size is about 10.

11. Which of the following is the correct interpretation of the slope of the regression equation?

    (A) Since the correlation is 0.792, height increases by about 79.2% on the average.
    (B) Height increases by about 1.71 inches on the average.
    (C) As height increases, the shoe size increases by about 1.71 inches on the average.
    (D) For every one shoe size increase, height increases by about 1.71 inches on the average.
    (E) For every one size increase of shoe length, height increases by 51.3 inches on the average.

12. Use the regression equation to predict the height of a student whose shoe size is 10.5.

    (A) 10.5 (B) 1.71×10.5 (C) 51.3 in. (D) Any value between 64 and 75 inches. (E) 69.3 in.

13. A newspaper conducts a survey of college students and finds a positive association between their heights and their responses to the question "What is the fastest you have ever driven a car?" The newspaper headline reports "Height and Lead Foot Go Together." Is this a sensible conclusion?

    (A) Yes, height is causing the lead foot.

    (B) Yes, the bigger you are the more pressure you will apply to the accelerator.

    (C) No, the size of one's foot is the lurking variable here.

    (D) Not necessarily. We know that men tend to be taller than women and studies indicate that men tend to claim a higher faster speed than women do. One should examine the relationship separately for men and women.

    (E) No, unless r was close to 1 then there is strong evidence to suggest knowing someone's height would give us an idea how fast they would likely drive.

Use the following to answer the next 3 questions about gender and tobacco use. There were 1004 students who responded to the question Have you used any tobacco products in the past 30 days? Choose a student at random from this group. Here is the distribution of results:

Tabulated statistics: Gender, Tobacco Use

Rows: Gender Columns: Tobacco Use

	Yes	No	All
Female	141	455	596
Male	162	246	408
All	303	701	1004

Cell Contents: Count

14. The probability that the student is a male and has used tobacco products in the past 30 days is

    (A) 0.161 (B) 0.535 (C) 0.397 (D) 0.406 (E) 0.302

15. The conditional probability that the student was male, given that have used tobacco products in the past 30 days, is about

    (A) 0.406 (B) 0.535 (C) 0.161 (D) 0.302 (E) 0.397

16. The conditional probability that the student used tobacco products in the past 30 days, given that the student was a male, is about

    (A) 0.535 (B) 0.302 (C) 0.406 (D) 0.161 (E) 0.397

17. To assess the opinion of students at East Tennessee State University about campus safety, a reporter for the student newspaper interviews 15 students she meets walking on the campus late at night who are willing to give their opinion. What kind of sample is this?

    (A) A simple random sampling.
    (C) A stratified random sample.
    (B) A census.
    (D) An unbiased random sample.
    (E) A voluntary response sample.

18. Does talking on a hands-free cell phone distract drivers? Undergraduate students "drove" in a high-fidelity driving simulator equipped with a hands-free cell phone. The car ahead brakes: how quickly does the subject react? There are 40 student subjects available. All subjects drove both with and without using the cell phone. The two drives are on separate days to reduce carryover effects. The order of the two treatments is assigned at random: 20 subjects are chosen to drive first with the phone, and the remaining 20 drive first without the phone. The study compares each subject's reaction time with and without the cell phone. This is

    (A) a completely randomized experiment.
    (C) an observational study.
    (B) a stratified random sample.
    (D) an uncontrolled experiment.
    (E) a matched pairs experiment.

19. Do antioxidants prevent cancer? People who eat lots of fruit and vegetables have lower rates of colon cancer than those who eat little of these foods. Fruits and vegetables are rich in "antioxidants" such as vitamins A, C, and E. Will taking antioxidants help prevent colon cancer? Here are two ways to study this question.

    (1) A researcher finds 864 people who are at risk of colon cancer. The researcher asks the subjects if they take vitamins A, C, or E. The researcher followed the groups for 4 years.

    (2) A researcher finds 864 people who were at risk of colon cancer. The subjects were randomly assigned into four groups: daily beta-carotene, daily vitamins C and E, all three vitamins every day, or daily placebo. The researcher followed the groups for 4 years.

    Which of the following is correct?

    (A) Both designs are experiments.

    (B) The first design is an experiment, and the second is an observational study.

    (C) Both designs are observational studies.

    (D) The first design is an observational study, and the second is an experiment.

    (E) The first design is an SRS and the second is a stratified random sample.

    Use the following for the next 2 questions. The time (in number of days) until maturity of a certain variety of tomato plant is Normally distributed with mean μ and standard deviation $\sigma = 2.4$. A simple random sample of four plants of this variety is selected. The number of days until maturity for each plant is given below

    63 69 62 66

20. Based on these data, a 99% confidence interval for μ, in days, is

    (A) 65.00 ± 3.09. (B) 65.00 ± 1.55. (C) 65.00 ± 2.35. (D) 65.00 ± 4.07. (E) 67.00 ± 2.4.

21. If we wanted the margin of error associated with this estimate to be 0.5 days, how many plants do we need to sample?

    (A) 153 (B) 13 (C) 16 (D) 1000 (E) 6

22. Can changing diet reduce high blood pressure? Vegetarian diets and low-salt diets are both promising. There are 240 men with high blood pressure to serve as subjects and they are to be assigned at random to four diets: (1) normal diet with unrestricted salt; (2) vegetarian with unrestricted salt; (3) normal with restricted salt; and (4) vegetarian with restricted salt. The study ran for 8 weeks. The researchers said the results were statistically significant at the 0.05 significance level. What does "statistically significant" mean in this context?

    (A) Perhaps the results are attributable to some confounding variable (e.g., exercise).

    (B) The results are of practical importance and this can be stated with 95% confidence.

    (C) The chance that the null hypothesis is true is very small.

    (D) The chance that there is no difference between the diets, when in fact there truly is one, is only 0.05.

    (E) They mean that the change in blood pressure for the men on the vegetarian diet with restricted salt was larger than what they would expect to occur by chance alone.

23. A local evening news television show asked viewers to call in with their opinion on whether they favored a new property tax levy being proposed. At the end of the program, the anchor announced that 91% of callers were opposed to the new property tax levy with a margin of error $\pm 3\%$. Based on this, we may conclude

    (A) that the vast majority of the show's viewers are opposed to the property tax levy.

    (B) that this survey was a waste of time and tells us nothing useful about the opinions of city residents or even about the show's viewers. The callers likely do not represent either of these populations.

    (C) if all city residents were surveyed, it's likely that the vast majority of them would be opposed to the property tax levy.

    (D) these results are statistically significant and provide evidence that the city's property owners are strongly opposed to the new property tax levy.

    (E) that the results are most likely biased because the sample size is small.

Use the following for the next 4 questions. The United States Army is studying the effect of sleep deprivation on the performance of a vigilance task. A random sample of 15 volunteers is obtained and randomly assigned to the following conditions defined by the number of hours of sleep deprivation. Specifically, each subject will be asked to perform a task after 18, 21, 24, 27, or 30 hours of sleep deprivation. After performing the vigilance task, each subject will be assigned a score on a 0 to 100 scale, with higher scores indicating better performance. Here are data from such an experiment:

Sleep Deprivation (hrs.)	Performance Scores		
18	90	86	88
21	75	74	77
24	57	59	60
27	40	43	39
30	18	16	20

24. This experiment has

(A) fifteen factors.
(B) fifteen subjects being compared.
(C) one factor with five levels of sleep deprivation.
(D) two factors, sleep deprivation and vigilance task.
(E) one factor with 101 (0 to 100) levels.

25. Software assigns an SRS of 3 individuals to 18 hours of sleep deprivation, an SRS of 3 individuals to 21 hours of sleep deprivation, an SRS of 3 individuals to 24 hours of sleep deprivation, an SRS of 3 individuals to 27 hours of sleep deprivation, and the remaining 3 individuals to 30 hours of sleep deprivation. This is a

(A) block design, with five blocks.
(B) completely randomized design.
(C) matched pairs design.
(D) controlled observational study.
(E) stratified random sample.

26. An important response variable in this experiment is

(A) sleep deprivation.
(B) 18, 21, 24, 27, or 30 hours.
(C) performance score.
(D) whether or not an individual was sleep deprived.
(E) the vigilance task type.

27. Describe the overall pattern of the relationship between Sleep Deprivation and Performance.

(A) There is a positive linear association between Sleep Deprivation and Performance.
(B) For every 3 hour increase in Sleep Deprivation, Performance Scores decrease 74 points.
(C) As Sleep Deprivation increases the Performance Score also increases.
(D) There is a negative linear association between Sleep Deprivation and Performance.
(E) A linear association is not appropriate because Sleep Deprivation only takes on 5 values.

28. The headline of a Reuters news article posted at the Yahoo Health News website February 18, 1998 was "Spring Birthday Confers Height Advantage." The article describes an Austrian study of the heights of 507,125 military recruits. In an article in the journal *Nature*, the researchers reported their finding that men born in the spring were, on average, about $1/4$ of an inch taller than men born in the fall. The difference earned the title statistically significant. The most likely explanation of the result being statistically significant is

(A) it is based on a very small sample.
(B) the p-value is large.
(C) it is based on a very large sample.
(D) the test of hypotheses is not rejected.
(E) the size of the sample doesn't have any effect on the significance of the test.

29. Gastwirth (1988, *Statistical Reasoning in Law and Public Policy*) describes a court case in which Bristol Myers was ordered by the Federal Trade Commission to stop advertising that "twice as many dentists use Ipana as any other dentifrice." Bristol Myers had based its claim on a survey of 10,000 randomly selected dentists from a list of 66,000 subscribers to two dental magazines. They received 1983 responses, with 621 saying they used Ipana and only 258 reporting that they used the second most popular brand. Why do you think the Federal Trade Commission ordered Bristol Myers to stop advertising its claim?

    (A) The survey suffers from undercoverage and nonresponse.

    (B) The numbers don't add up since it appears that 1362 dentists use something different than Ipana. Hence, about twice as many dentists use something other than Ipana!

    (C) An invalid survey because not all 66,000 subscribers to the dental magazines received the questionnaire.

    (D) The lurking variable here is payment to the dentists from Bristol Myers to use Ipana.

    (E) The sample size is too small.

30. A Gallup (known, reputable, professional, polling organization) poll asked the question, "With which one of these statements about the environment and the economy do you most agree? Protection of the environment should be given priority, even at the risk of curbing economic growth. OR, Economic growth should be given priority, even if the environment suffers to some extent." A random sample of 1,012 adults nationwide were contacted and surveyed. In all, 51% of the sample said that Economic growth should be given priority, even if the environment suffers to some extent. Gallup announced the polls margin of error for 95% confidence as ± 3 percentage points. Which of the following sources of error are included in the margin of error?

    (A) the people who were missed because that they do not have phones

    (B) variability due to random sampling (or sampling variability)

    (C) nonresponse - some people just don't like to respond to surveys

    (D) variability due to the person who asked the question

    (E) all sources of error are covered by the margin of error - that is why it is called the 'margin of error'

31. Suppose two researchers wanted to determine if aspirin reduced the chance of a heart attack. Researcher 1 studied the medical records of 500 patients. For each patient, he recorded whether the person took aspirin every day and if the person had ever had a heart attack. Then he reported the percentage of heart attacks for the patients who took aspirin every day and for those who did not take aspirin every day. Researcher 2 also studied 500 people. He randomly assigned half (250) of the patients to take aspirin every day and the other half to take a placebo everyday then after a certain length of time he reported the percentage of heart attacks for the patients who took aspirin every day and for those who did not take aspirin every day. Suppose that both researchers found that there is a statistically significant difference in the heart attack rates for the aspirin users and the non-aspirin users and that aspirin users had a lower rate of heart attacks. Can both researchers conclude that aspirin helps reduce the chance of a heart attack?

    (A) No, only researcher 2 can conclude this since this is a randomized comparative experiment.

    (B) Yes, because aspirin users had a lower heart attack rate in both studies.

    (C) Yes, because aspirin is known to reduce heart attacks.

    (D) No, only researcher 1 can conclude this since this is an observational study.

    (E) No, neither can conclude this because diet and lifestyle are lurking variables.

32. The mean blood cholesterol level for all men aged 20 to 34 years is 188 mg/dl. It is suspected that the mean for marathon runners is lower. The hypotheses for a test to answer this question are

    (A) $H_0 : \mu = 188, H_a : \mu > 188$ (C) $H_0 : \mu = 188, H_a : \mu < 188$

    (B) $H_0 : \bar{x} = 188, H_a : \bar{x} < 188$ (D) $H_0 : p = 188, H_a : p < 188$

    (E) $H_0 : \mu = 188, H_a : \mu \neq 188$

Use the following for the next 2 questions. A recent Gallup Poll interviewed a random sample of 1600 adult Americans. Of these, 960 bought a lottery ticket in the past year.

33. With 95% confidence, estimate the proportion of the adult Americans who bought a lottery ticket in the past year.
(A) 0.60 ± 0.0240 (B) 1600 ± 38 (C) 960 ± 38 (D) 0.60 ± 1.96 (E) 0.6 ± 0.00011025

34. If the 1600 people had called a 900 number to give their opinion, how would this affect the confidence interval in the previous question?

(A) It would be narrower because voluntary response polls are less variable than SRSs.

(B) It would be wider because voluntary response polls have a bigger margin of error than SRSs.

(C) Not at all, because the width of the confidence interval depends only on the sample size, and not on how the sample was obtained.

(D) Not at all, because the width of the confidence interval depends only on the sample size, and not on the population size.

(E) A confidence interval makes no sense for a voluntary response sample.

35. About 15% of the students who responded to the Math 1530 survey said that they consume typically at least four beers per week. Let X equal the number of students in a random sample of size $n = 6$ who drink at least four beers in a typical week. Find the probability that X is at least 1.
(A) 0.3993 (B) 0.3685 (C) 0.6315 (D) 0.6229 (E) 0.8500

36. Consider an experiment where a fair coin will be tossed 4 times. Which of the following is a correct statement?

(A) It is more likely that the experiment produces two flips of heads and two flips of tails than three flips the same and one of the other.

(B) It is more likely that the experiment produces three flips the same and one of the other than two flips of heads and two flips of tails.

(C) It most likely that the experiment produces the sequence: heads, tails, heads, tails.

(D) It is more likely that the experiment produces three heads and one tail than one head and three tails.

(E) If the experiment had produced three consecutive heads then the probability that the next flip will be a tail is greater than .5.

37. According to the Nielson Company the average Internet user spends about 2.3 hours per day online. The Math 1530 survey revealed that the average amount of time spent on the Internet per week was about 2.4 hours. If we consider the 951 students who responded to the survey question as a random sample of all students at ETSU, which of the following would be most helpful in assessing the practical significance of a test of hypotheses $H_0 : \mu = 2.3$ $H_a : \mu \neq 2.3$?

(A) Take another sample and retest just to make sure the results are not due to chance.

(B) A statistically significant result.

(C) Test the hypotheses using significance level $\alpha = 0.001$.

(D) A 95% confidence interval for the mean number of hours online per week is $(2.3471, 2.5183)$.

(E) Increase the sample size so that the P-value will be even smaller and the results will be more statistically significant.

38. The amount of money college students spend each semester on textbooks is normally distributed with a mean of \$195 and a standard deviation of \$20. Suppose you take a random sample of 100 college students from this population. There would be a 68% chance that the sample mean ($\bar{X}$) amount spent on textbooks would be between:
(A) \$191 and \$199. (B) \$175 and \$215. (C) \$155 and \$235. (D) \$193 and \$197. (E) $\$195 \pm (.68)(20/\sqrt{100})$

39. The Survey of Study Habits and Attitudes (SSHA) is a psychological test that measures the motivation, attitude, and study habits of college students. Scores range from 0 to 200 and follow (approximately) a normal distribution with mean of 115 and standard deviation of 25. You suspect that incoming freshman have a mean which is different than 115, because they are often excited yet anxious about entering college. To test your suspicion, you test the hypotheses

$$H_0 : \mu = 115, H_a : \mu \neq 115.$$

In testing these hypotheses, which of the following would be strong evidence against the null hypothesis?

(A) obtaining data with a small P-value
(B) using a small level of significance
(C) using a large level of significance
(D) obtaining data with a large P-value
(E) obtaining data with any sample mean different from 115.

40. A Gallup Poll asked 1,523 adult respondents and also 501 teens (ages 13 to 17) whether they generally approved of legal gambling: 63% of adults and 52% of teens said yes. The margin of error for a 95% confidence statement about teens would be

(A) less than for adults, because the teen sample is smaller.
(B) less than for adults, because there are fewer teens in the population.
(C) the same as for adults, because they both come from the same sample survey.
(D) Can't say, because it depends on what percent of each population was in the sample.
(E) greater than for adults, because the teen sample is smaller.

41. While only 5% of babies have learned to walk by the age of 10 months, 75% are walking by 13 months of age. If the age at which babies develop the ability to walk can be described by a Normal model, find the parameters (mean and standard deviation (sd)).

(A) mean = 10 months, sd = 2 months
(B) mean = 75%, sd = 5%
(C) mean = 11 months, sd = 1 month
(D) mean = 13 months, sd = 1.5 months
(E) mean = 12.1 months, sd = 1.3 months

42. A medical researcher is working on a new treatment for a certain type of cancer. The average survival time after diagnosis on the standard treatment is two years. In an early trial, she tries the new treatment on three subjects who have an average survival time after diagnosis of four years. Although the survival time has doubled, the results are not statistically significant even at the 0.10 significance level. The most likely explanation is

(A) the placebo effect is present, which limits statistical significance.
(B) the sample size is small.
(C) that although the survival time has doubled, in reality the actual increase is really two years.
(D) the calculation was in error. The researchers forgot to include the sample size.
(E) the P-value is smaller than .1.

Binomial Probability Table

		p											
n	*x*	.01	.05	.10	.15	.20	.25	.30	1/3	.35	.40	.45	.50
1	0	0.9900	0.9500	0.9000	0.8500	0.8000	0.7500	0.7000	0.6667	0.6500	0.6000	0.5500	0.5000
	1	0.0100	0.0500	0.1000	0.1500	0.2000	0.2500	0.3000	0.3333	0.3500	0.4000	0.4500	0.5000
2	0	0.9801	0.9025	0.8100	0.7225	0.6400	0.5625	0.4900	0.4444	0.4225	0.3600	0.3025	0.2500
	1	0.0198	0.0950	0.1800	0.2550	0.3200	0.3750	0.4200	0.4444	0.4550	0.4800	0.4950	0.5000
	2	0.0001	0.0025	0.0100	0.0225	0.0400	0.0625	0.0900	0.1111	0.1225	0.1600	0.2025	0.2500
3	0	0.9703	0.8574	0.7290	0.6141	0.5120	0.4219	0.3430	0.2963	0.2746	0.2160	0.1664	0.1250
	1	0.0294	0.1354	0.2430	0.3251	0.3840	0.4219	0.4410	0.4444	0.4436	0.4320	0.4084	0.3750
	2	0.0003	0.0071	0.0270	0.0574	0.0960	0.1406	0.1890	0.2222	0.2389	0.2880	0.3341	0.3750
	3	0.0000	0.0001	0.0010	0.0034	0.0080	0.0156	0.0270	0.0370	0.0429	0.0640	0.0911	0.1250
4	0	0.9606	0.8145	0.6561	0.5220	0.4096	0.3164	0.2401	0.1975	0.1785	0.1296	0.0915	0.0625
	1	0.0388	0.1715	0.2916	0.3685	0.4096	0.4219	0.4116	0.3951	0.3845	0.3456	0.2995	0.2500
	2	0.0006	0.0135	0.0486	0.0975	0.1536	0.2109	0.2646	0.2963	0.3105	0.3456	0.3675	0.3750
	3	0.0000	0.0005	0.0036	0.0115	0.0256	0.0469	0.0756	0.0988	0.1115	0.1536	0.2005	0.2500
	4	0.0000	0.0000	0.0001	0.0005	0.0016	0.0039	0.0081	0.0123	0.0150	0.0256	0.0410	0.0625
5	0	0.9510	0.7738	0.5905	0.4437	0.3277	0.2373	0.1681	0.1317	0.1160	0.0778	0.0503	0.0313
	1	0.0480	0.2036	0.3280	0.3915	0.4096	0.3955	0.3601	0.3292	0.3124	0.2592	0.2059	0.1562
	2	0.0010	0.0214	0.0729	0.1382	0.2048	0.2637	0.3087	0.3292	0.3364	0.3456	0.3369	0.3125
	3	0.0000	0.0011	0.0081	0.0244	0.0512	0.0879	0.1323	0.1646	0.1811	0.2304	0.2757	0.3125
	4	0.0000	0.0000	0.0005	0.0022	0.0064	0.0146	0.0283	0.0412	0.0488	0.0768	0.1128	0.1562
	5	0.0000	0.0000	0.0000	0.0001	0.0003	0.0010	0.0024	0.0041	0.0053	0.0102	0.0185	0.0313
6	0	0.9415	0.7351	0.5314	0.3771	0.2621	0.1780	0.1176	0.0878	0.0754	0.0467	0.0277	0.0156
	1	0.0571	0.2321	0.3543	0.3993	0.3932	0.3560	0.3025	0.2634	0.2437	0.1866	0.1359	0.0938
	2	0.0014	0.0305	0.0984	0.1762	0.2458	0.2966	0.3241	0.3292	0.3280	0.3110	0.2780	0.2344
	3	0.0000	0.0021	0.0146	0.0415	0.0819	0.1318	0.1852	0.2195	0.2355	0.2765	0.3032	0.3125
	4	0.0000	0.0001	0.0012	0.0055	0.0154	0.0330	0.0595	0.0823	0.0951	0.1382	0.1861	0.2344
	5	0.0000	0.0000	0.0001	0.0004	0.0015	0.0044	0.0102	0.0165	0.0205	0.0369	0.0609	0.0938
	6	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0007	0.0014	0.0018	0.0041	0.0083	0.0156
7	0	0.9321	0.6983	0.4783	0.3206	0.2097	0.1335	0.0824	0.0585	0.0490	0.0280	0.0152	0.0078
	1	0.0659	0.2573	0.3720	0.3960	0.3670	0.3115	0.2471	0.2048	0.1848	0.1306	0.0872	0.0547
	2	0.0020	0.0406	0.1240	0.2097	0.2753	0.3115	0.3177	0.3073	0.2985	0.2613	0.2140	0.1641
	3	0.0000	0.0036	0.0230	0.0617	0.1147	0.1730	0.2269	0.2561	0.2679	0.2903	0.2918	0.2734
	4	0.0000	0.0002	0.0026	0.0109	0.0287	0.0577	0.0972	0.1280	0.1442	0.1935	0.2388	0.2734
	5	0.0000	0.0000	0.0002	0.0012	0.0043	0.0115	0.0250	0.0384	0.0466	0.0774	0.1172	0.1641
	6	0.0000	0.0000	0.0000	0.0001	0.0004	0.0013	0.0036	0.0064	0.0084	0.0172	0.0320	0.0547
	7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0005	0.0006	0.0016	0.0037	0.0078
8	0	0.9227	0.6634	0.4305	0.2725	0.1678	0.1001	0.0576	0.0390	0.0319	0.0168	0.0084	0.0039
	1	0.0746	0.2793	0.3826	0.3847	0.3355	0.2670	0.1977	0.1561	0.1373	0.0896	0.0548	0.0312
	2	0.0026	0.0515	0.1488	0.2376	0.2936	0.3115	0.2965	0.2731	0.2587	0.2090	0.1569	0.1094
	3	0.0001	0.0054	0.0331	0.0839	0.1468	0.2076	0.2541	0.2731	0.2786	0.2787	0.2568	0.2187
	4	0.0000	0.0004	0.0046	0.0185	0.0459	0.0865	0.1361	0.1707	0.1875	0.2322	0.2627	0.2734
	5	0.0000	0.0000	0.0004	0.0026	0.0092	0.0231	0.0467	0.0683	0.0808	0.1239	0.1719	0.2187
	6	0.0000	0.0000	0.0000	0.0002	0.0011	0.0038	0.0100	0.0171	0.0217	0.0413	0.0703	0.1094
	7	0.0000	0.0000	0.0000	0.0000	0.0001	0.0004	0.0012	0.0024	0.0033	0.0079	0.0164	0.0312
	8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0002	0.0007	0.0017	0.0039

CONFIDENCE LEVEL	*TAIL AREA*	z^*
80%	0.1000	1.282
90%	0.0500	1.645
95%	0.0250	1.960
96%	0.0200	2.054
98%	0.0100	2.326
99%	0.0050	2.576
99.5%	0.0025	2.807