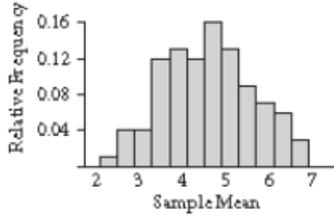


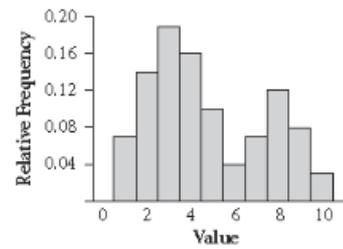
Review Basketball Chapter 7

1)

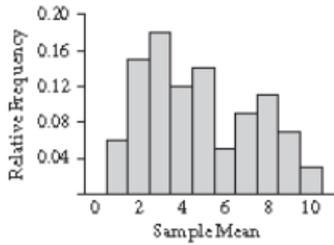
A.



Original
Population:

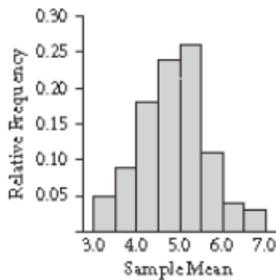


B.



Match the standard error (I, II, or III) with the correct sampling distribution (A, B, or C) and the correct sample size (1, 5, or 10)

C.



I. Standard Error 1.03

II. Standard Error 0.73

III. Standard Error 2.54

2) About 34% of Americans have blood type A+. In a random sample of 1000 Americans, what is the interval of reasonably likely values for the total number of Americans with blood type A+?

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3) The distribution of total points earned by the students taking Calculus at a large university is slightly skewed left with mean 625 and standard deviation 44.5. If a random sample of 100 students is taken, describe the distribution of the sample mean as well as the mean and standard deviation.

4) Suppose a fair coin is flipped 2500 times, and the number of heads is recorded. What is the smallest and largest reasonably likely total number of heads?

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5) If two values are selected randomly and independently from two populations, then which of these statements is not true?

- A) The mean of the sampling distribution of the sum of the values is equal to the sum of the population means.
- B) The mean of the sampling distribution of the differences of the values is equal to the difference of the population means.
- C) The variance of the sampling distribution of the sum is equal to the sum of the variances.
- D) The variance of the sampling distribution of the difference is equal to the difference of the variances.
- E) If the two populations are normally distributed, so are the distributions of the sum and the difference.

6) An investigator anticipates that the proportion of red blossoms in his hybrid plants is 0.15. In a random sample of 50 of his plants, 22% of the blossoms are red. If the investigator is correct, the standard deviation of the sampling distribution of the sample proportion is approximately what?

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7) The AAA reports that the average time it takes to respond to an emergency call is 25 minutes. Assume the variable is approximately normally distributed and the standard deviation is 4.5 minutes. If 80 calls are randomly selected, approximately how many will be responded to in less than 15 minutes.

The distribution of SAT 1 math scores for female students in the US is approximately normal with mean 500 and standard deviation of 110, and the distribution of SAT 1 math scores for male students is approximately normal with mean 534 and standard deviation 116.

8) Suppose one female student's SAT 1 math score is selected at random, one male student's SAT 1 math score is independently selected at random, and scores are added. Describe the shape, center, and spread.

9) Compute the probability that the sum of the scores from #8 is less than 900.

10) What is the probability that the female student's score is at least 150 points higher than the male student's score?

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The distribution of SAT 1 math scores for female students in the US is approximately normal with mean 500 and standard deviation of 110, and the distribution of SAT 1 math scores for male students is approximately normal with mean 534 and standard deviation 116.

11) What is the probability that the sum of the scores of 10 randomly and independently selected females is greater than 5100?

12) A.C. Nielsen reported that children between the age of 2 and 5 watch an average of 25 hours of TV per week. Assume the variable is normally distributed and the standard deviation is 3 hours. If 20 children between the age of 2 and 5 are randomly selected, find the probability that the mean of the number of hours they watch TV will be greater than 26.3 hours.

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13) The average age of a vehicle registered in the US is 8 years, or 96 months. Assume the standard deviation is 16 months. If a random sample of 36 vehicles is selected, find the probability that the mean of their ages is between 90 and 100 months.

The average number of pounds of meat that a person consumes a year is 218.4 pounds. Assume that the standard deviation is 25 pounds and the distribution is approximately normal.

14) Find the probability that a person selected at random consumes less than 224 pounds per year.

15) If a sample of 40 individuals is selected, find the probability that the mean of the sample is less than 224 pounds per year.

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The average number of milligrams of sodium in a certain brand of low-salt microwave frozen dinners is 660 mg, and the standard deviation is 35 mg. Assume the variable is normally distributed.

16) If a single dinner is selected, find the probability that the sodium content will be more than 670 mg.

17) If a sample of 10 dinners is selected, find the probability that the mean of the sample will be larger than 670 mg.

Key:

- 1) I. $n = 5$; II. $n = 10$; III. $n = 1$
- 2) between 310.63 & 369.36
- 3) normal; $\mu = 625$; $\sigma = 4.45$
- 4) between 1201 & 1299
- 5) D
- 6) 0.0505
- 7) 1.056
- 8) normal; $\mu = 1034$; $\sigma = 159.86$
- 9) 0.2005
- 10) 0.1251
- 11) 0.3859
- 12) 0.0262
- 13) 0.9210
- 14) 0.5871
- 15) 0.9222
- 16) 0.3859
- 17) 0.1841