There are 10 questions. Do all parts of all questions. Show the work you do to obtain an answer. A calculator and your textbook are allowed. No other books or notes are allowed. Make sure you have seen and understand the material in the syllabus about what sort of notes you are allowed to put in your book. Do not share calculators.

Put your name on your blue book. Put all the work you wish to have graded in your blue book. Turn in both your exam and your blue book together. When you turn in your exam make sure your name gets checked off the list as having turned in the exam.

1. (6 points) In each case tell whether the information given is at the nominal, ordinal, interval, or ratio level of measurement. The number or word in parentheses indicates what data you are to classify.
   (a) That house is yellow. (yellow)
   (b) That house cost $120,000. ($120,000)

2. (6 points) In each case tell whether the sample is being selected by random, systematic, cluster, stratified, or convenience sampling.
   (a) A college wishes to conduct a survey of its freshman class. It puts the names of all the freshmen in alphabetical order, then picks every 20th name and interviews them.
   (b) To conduct a phone survey a marketing firm has a computer randomly generate phone numbers then dials those numbers and talks to whoever answers.

3. (8 points) Make a stem-and-leaf plot of the following data. Use the integer part of each number as the stem.

   4.8  3.3  5.9  2.1  4.2  3.7  5.4  2.0  4.6  3.5

4. (10 points) In a box of 200 computer chips 30 of them are defective. If 3 chips are chosen at random with replacement, what is the probability that at least one of them is defective?

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5. (10 points) In a certain truckload of apples 30% of the apples are rotten. If 12 of the apples are chosen at random, what is the probability that less than 3 of them are rotten?

6. (12 points) Consider the following list of data values.
   (a) Compute the 35th percentile, \( P_{35} \).
   (b) Compute the percentile of the data value 7.

   4 5 7 9 11 14 15 17 19 21 24 27

7. (12 points) For the following list of numbers compute the mean, median, and sample standard deviation.

   7 9 13 15 19

8. (12 points) Weights of pumpkins from a certain field have a mean of 17.2 pounds and a standard deviation of 4.2 pounds. A simple random sample of 55 pumpkins is taken from that field. What is the probability that the mean weight of those 55 pumpkins is greater than 18.0 pounds?

9. (12 points) In a poll of a simple random sample of 1500 people from a certain county 450 of them say their favorite ice cream flavor is chocolate. Construct a 99% confidence interval for the proportion of all people in that county whose favorite ice cream flavor is chocolate.

10. (12 points) Heights of adult male giraffes in a certain nature preserve are normally distributed with a mean of 19.2 feet and a standard deviation of 3.8 feet. Find the 30th percentile of these giraffe heights, which is the height separating the bottom 30% of heights from the top 70% of heights.