

1. Circle the names of graphs which are appropriate for describing the distribution of a categorical variable.

Boxplot Stemplot Pie Chart Histogram
Bar Chart Dotplot Time Plot Segmented Bar Chart

2. Circle the variables you think are likely to follow a Normal model.

Length of hair for students in our class Femur lengths in adult male baboons
Home prices in Southern California Numbers between 1 and 5 randomly generated by a computer
Diameter of ripe oranges picked in a grove Weight of full-term female babies born in a hospital

3. These summary statistics describe the time (in seconds) that it takes a group of 5th grade students to complete a timed multiplication quiz.

Min	Q1	Median	Q3	Max	Mean	SD
8	14	17	26	38	23.7	7.31

- a. Compare the mean and median. Based on this comparison, do you think this distribution is symmetric, skewed left or skewed right? Explain.
- b. Draw a modified boxplot. Does this boxplot confirm your answer to question (a)? Describe the center, shape and spread of the distribution. What part(s) of the shape cannot be seen in this type of graph?
- c. A student takes 12 seconds to complete the quiz. What is his z-score? Explain what this z-score means in the context of this problem.

4. A roadway construction process uses a machine that pours concrete onto the roadway and measures the thickness of the concrete so the roadway will measure up to the required depth in inches. The concrete thickness needs to be consistent across the road, but the machine isn't perfect and it is costly to operate. Since there's a safety hazard if the roadway is thinner than the minimum 23 inch thickness, the company sets the machine to average 26 inches for the batches of concrete. The standard deviation is 1.75 inches. They believe the thickness level of the machine's concrete output can be described by the Normal model $N(26, 1.75)$
- Draw and clearly label this model according to the 68-95-99.7 rule.
 - What percent of the concrete roadway is under the minimum depth of 23 inches?
 - What is the first quartile (the cutoff depth for the bottom 25%) of the roadway depths?
5. You take a multiple choice test in your English class. Each of the 50 questions is worth 2 points, for a total of 100 points. Because the class did not do well on the test, your teacher decides to give every student an extra 7 points in their test score to raise the grades. For example, if you answered 42 questions correctly, your score would be $2(42) + 7 = 84 + 7 = 91$ points. Following are summary statistics for the *number of questions answered correctly* by students on the test. Determine the corresponding statistics for the *scores* on the test.

Statistic	Questions Right	Test Score
Mean	28	
Q1	19	
Range	45	
Minimum	4	
IQR	21	