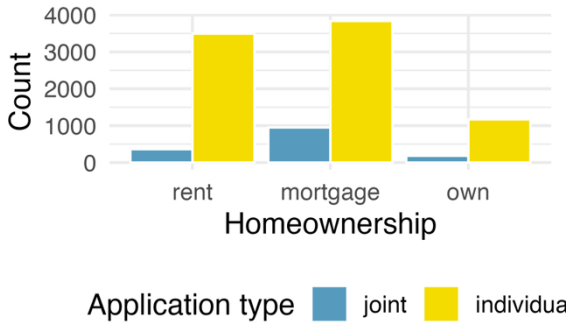
Names: **Answer Key**

Exam Review

1. For each plot type, list the number and type of variables that can be represented by the plot (for example, pie chart: 1 categorical variable).
   a. Dot plot: **1 quantitative variable**
   b. Bar chart: **1 categorical variable**
   c. Histogram: **1 quantitative variable**
   d. Side-by-side bar chart, stacked bar chart, standardized bar chart: **2 categorical variables**
   e. Scatterplot: **2 quantitative variables**
   f. Box plot: **1 quantitative variable**

2. Based on this side-by-side bar chart, answer the following questions.

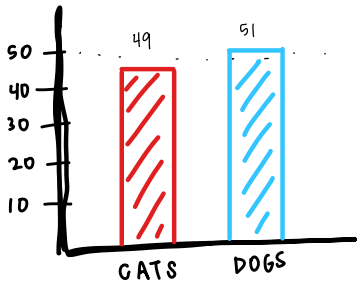


   a. What does this chart tell you about the number of total loan applications for each type of home ownership?
   In this sample, mortgaged homes received the largest number of total loan applications. Rented homes received the second largest, and owned homes received the smallest number.
   b. What does this chart tell you about the number of individual loan applications compared to the number of joint loan applications for each type of home ownership?
   In this sample, individual loan applications are more common than joint loan applications, regardless of home ownership type.

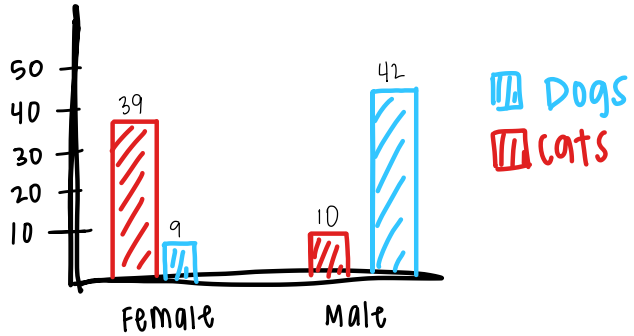
3. This contingency table shows the genders and species of animals at a local shelter. Use it to answer the following questions.

	Dog	Cat	Total
Male	42	10	52
Female	9	39	48
Total	51	49	100

a. What proportion of dogs at this shelter are female? **9/51 = .18**
b. What proportion of female animals are dogs? **9/48 = .19**
c. What proportion of cats are males? **10/49 = .20**
d. What proportion of male animals are cats? **10/52 = .19**
e. Sketch a bar chart that shows the total number of dogs compared to the total number of cats.



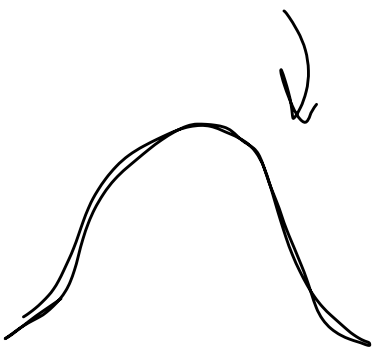
f. Sketch a stacked bar chart that shows the total number of dogs compared to the total number of cats, broken down by gender.



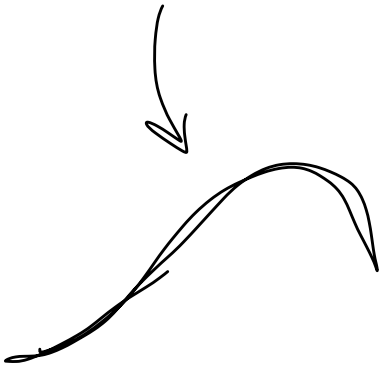
4. Sketch distributions with each of the following characteristics.

Right-skewed

Symmetrical



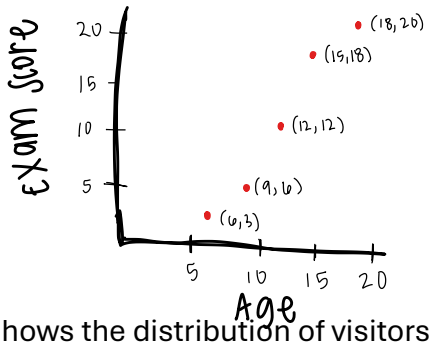
Left-skewed



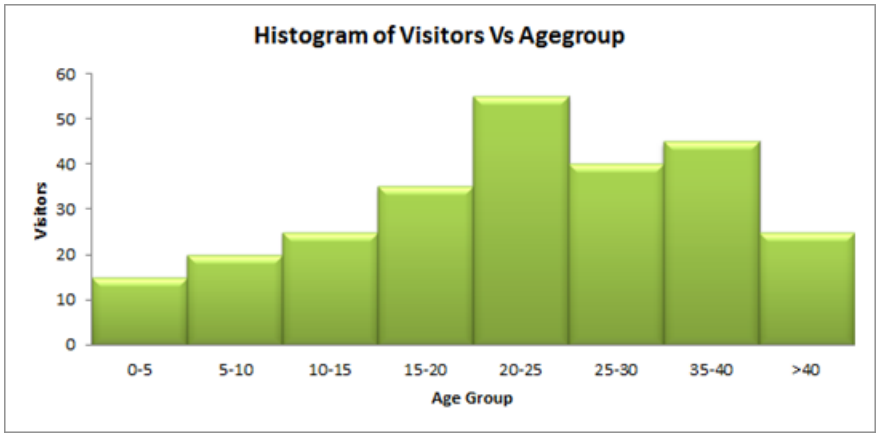
5. In this experiment, students of different ages were given the same exam, and their scores were recorded. A sample of 5 students is shown in the table below.

Student Age	Exam Score (out of 20)
12	12
6	3
18	20
15	18
9	6

   a. What type of plot would be best for visualizing this data?
   A scatterplot would best visualize this data, because it has 2 quantitative variables.
   b. Sketch the appropriate visualization below using only the 5 data points shown above.



6. The histogram below shows the distribution of visitors at a theme park on a single day. Use this histogram to answer the following questions.



   a. How would you describe the distribution?
   This distribution is slightly left skewed.
   b. In this sample, for ages 25 and under, what happens to the number of visitors as age increases?
   In this sample, for ages 25 and under, as age increases, the number of visitors also increases.

c. Which bin most likely contains the mean visitor age in this sample?
The mean is most likely in the 20–25-year-old age bin.