MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

A graphical display of a data set is given. State whether the distribution is (roughly) symmetric, right skewed, or left skewed.

1) Two dice were rolled and the sum of the two numbers was recorded. This procedure was repeated 400 times. The results are shown in the relative frequency histogram below.

![Relative Frequency Histogram](image)

A) Left skewed  
B) Symmetric  
C) Right skewed

Answer: B

Objective: (2.4) Classify Distribution as Symmetric or Skewed

Complete the contingency table and use it to solve the problem.

2) The partially filled contingency table gives the relative frequencies of the data on age (in years) and sex from the residents of a retirement home.

<table>
<thead>
<tr>
<th>Age (yrs)</th>
<th>60-69</th>
<th>70-79</th>
<th>Over 79</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>0.24</td>
<td>0.1</td>
<td>0.06</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>0.2</td>
<td>0.2</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

What percentage of residents are males over 79?

A) 0.6%  
B) 6%  
C) 5.5%  
D) 8%

Answer: B

Objective: (2.2) Complete and Use Contingency Table
Construct a stem–and–leaf diagram for the given data.

3) The normal monthly precipitation (in inches) for August is listed for 39 different U.S. cities. Construct an ordered stem–and–leaf diagram using two lines per stem.

```
3.5 1.6 2.4 3.7 4.1 3.9 1.0 3.6 1.7 0.4 3.2 4.2 4.1
4.2 3.4 3.7 2.2 1.5 4.2 3.4 2.7 4.0 2.0 0.8 3.6 3.7
0.4 3.7 2.0 3.6 3.8 1.2 4.0 3.1 0.5 3.9 0.1 3.5 3.4
```

A) 0. 0 1 4 4
    0. 5 8
    1. 0 2
    1. 5 6 7
    2. 0 0 2 4
    2. 7 7 7
    3. 1 2 4 4 4
    3. 5 5 6 6 6 7 7 8 9
    4. 0 0 1 1 2 2 2

B) 0. 1 4 4
    0. 5 8
    1. 0 2
    1. 5 6 7
    2. 0 0 2 4
    2. 7
    3. 1 2 4 4 4
    3. 5 5 6 6 6 7 7 7 8 9 9
    4. 0 0 1 1 2 2 2

Answer: B

Objective: (2.3) Construct Stem-and-Leaf Diagram

Construct a pie chart representing the given data set.

4) The following figures give the distribution of land (in acres) for a county containing 94,000 acres.

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Acres</th>
<th>Relative Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest</td>
<td>14,100</td>
<td>0.15</td>
</tr>
<tr>
<td>Farm</td>
<td>9,400</td>
<td>0.10</td>
</tr>
<tr>
<td>Urban</td>
<td>70,500</td>
<td>0.75</td>
</tr>
</tbody>
</table>

A) Forest 15%
           Farm 10%
           Urban 75%

B) Urban 70%
           Farm 20%
           Forest 10%

Answer: A

Objective: (2.3) Construct Pie Chart
A graphical display of a data set is given. State whether the distribution is (roughly) symmetric, right skewed, or left skewed.

5) The ages of a group of patients being treated at one hospital for osteoporosis are summarized in the frequency histogram below.

![Frequency histogram](image)

A) Right skewed  B) Symmetric  C) Left skewed

Answer: C

Objective: (2.4) Classify Distribution as Symmetric or Skewed

Classify the data as either qualitative or quantitative.

6) The following table shows the average weight of offensive linemen for each given football team.

<table>
<thead>
<tr>
<th>Team</th>
<th>Average weight (pounds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gators</td>
<td>303.52</td>
</tr>
<tr>
<td>Lakers</td>
<td>326.78</td>
</tr>
<tr>
<td>Eagles</td>
<td>290.61</td>
</tr>
<tr>
<td>Pioneers</td>
<td>321.96</td>
</tr>
<tr>
<td>Lions</td>
<td>297.35</td>
</tr>
<tr>
<td>Mustangs</td>
<td>302.49</td>
</tr>
<tr>
<td>Rams</td>
<td>345.88</td>
</tr>
<tr>
<td>Buffalos</td>
<td>329.24</td>
</tr>
</tbody>
</table>

What kind of data is provided by the information in the second column?

A) Qualitative  B) Quantitative

Answer: B

Objective: (2.1) Classify Data as Qualitative or Quantitative
Construct a dotplot for the given data.
7) The following data represent the number of cars passing through a toll booth during a certain time period over a number of days.
18 19 17 17 24 18 21 18 19 15 22 19 23 17 21

\[ \text{Answer: A} \]

**Objective: (2.3) Construct Dotplot**

Provide the requested table entry.
8) The data in the following table show the results of a survey of college students asking which vacation destination they would choose given the eight choices shown. Determine the value that should be entered in the relative frequency column for Florida.

<table>
<thead>
<tr>
<th>Destination</th>
<th>Frequency</th>
<th>Relative frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Florida</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Mexico</td>
<td>81</td>
<td></td>
</tr>
<tr>
<td>Belize</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Puerto Rico</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>Alaska</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>California</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Colorado</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Arizona</td>
<td>11</td>
<td></td>
</tr>
</tbody>
</table>

\[ \text{A) 30} \quad \text{B) 0.015} \quad \text{C) 0.15} \quad \text{D) 0.3} \]

\[ \text{Answer: C} \]

**Objective: (2.2) Construct Relative Frequency Distribution**
A nurse measured the blood pressure of each person who visited her clinic. Following is a relative-frequency histogram for the systolic blood pressure readings for those people aged between 25 and 40. Use the histogram to answer the question. The blood pressure readings were given to the nearest whole number.

9) Given that 600 people were aged between 25 and 40, approximately how many had a systolic blood pressure reading less than 130?
   A) 444   B) 44   C) 144   D) 74
   Answer: A
   Objective: (2.3) Use Histogram

Classify the data as either discrete or continuous.

10) The average height of all freshmen entering college in a certain year is 68.4 inches.
   A) Discrete   B) Continuous
   Answer: B
   Objective: (2.1) Classify Data as Discrete or Continuous

11) The following table shows the heights of the five tallest mountains in North America.

<table>
<thead>
<tr>
<th>Mountain</th>
<th>Height (ft)</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>McKinley</td>
<td>20,320</td>
<td>1</td>
</tr>
<tr>
<td>Logan</td>
<td>19,850</td>
<td>2</td>
</tr>
<tr>
<td>Citlaltepec</td>
<td>18,700</td>
<td>3</td>
</tr>
<tr>
<td>St. Elias</td>
<td>18,008</td>
<td>4</td>
</tr>
<tr>
<td>Popocatepetl</td>
<td>17,930</td>
<td>5</td>
</tr>
</tbody>
</table>

What kind of data is given in the second column of the table?
   A) Discrete   B) Continuous
   Answer: B
   Objective: (2.1) Classify Data as Discrete or Continuous
Classify the data as either qualitative or quantitative.

12) The following table gives the top five movies at the box office this week.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Last week</th>
<th>Movie title</th>
<th>Studio</th>
<th>Box office sales ($ millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>N/A</td>
<td>Pirate Adventure</td>
<td>Movie Giant</td>
<td>35.2</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Secret Agent Files</td>
<td>G.M.G.</td>
<td>19.5</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>Epic Super Hero Team</td>
<td>21st Century</td>
<td>14.3</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>Reptile Ride</td>
<td>Movie Giant</td>
<td>10.1</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>Must Love Cats</td>
<td>Dreamboat</td>
<td>9.9</td>
</tr>
</tbody>
</table>

What kind of data is provided by the information in the third column?

A) Qualitative
B) Quantitative

Answer: A

Objective: (2.1) Classify Data as Qualitative or Quantitative

Construct a frequency distribution for the given qualitative data.

13) The blood types for 40 people who agreed to participate in a medical study were as follows.

O A A O O AB O B A O
A O A B O O O AB A A
A B O A A O O B O O
O A O O A B O O A AB

Construct a frequency distribution for the data.

A) Blood type | Frequency
---|---
O | 20
A | 13
B | 4
AB | 3

B) Blood type | Frequency
---|---
O | 18
A | 14
B | 5
AB | 3

C) Blood type | Frequency
---|---
O | 19
A | 11
B | 5
AB | 2

D) Blood type | Frequency
---|---
O | 19
A | 13
B | 5
AB | 3

Answer: D

Objective: (2.2) Construct Frequency Distribution (Qualitative Data)
Provide the requested response.

14) The table contains data from a study of daily study time for 40 students from Statistics 101. In constructing an ogive from the data, what quantity should be assigned to each axis.

<table>
<thead>
<tr>
<th>Minutes on homework</th>
<th>Number of students</th>
<th>Relative frequency</th>
<th>Cumulative relative frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 ≤ 15</td>
<td>2</td>
<td>0.05</td>
<td>0.05</td>
</tr>
<tr>
<td>15 ≤ 30</td>
<td>4</td>
<td>0.10</td>
<td>0.15</td>
</tr>
<tr>
<td>30 ≤ 45</td>
<td>8</td>
<td>0.20</td>
<td>0.35</td>
</tr>
<tr>
<td>45 ≤ 60</td>
<td>18</td>
<td>0.45</td>
<td>0.80</td>
</tr>
<tr>
<td>60 ≤ 75</td>
<td>4</td>
<td>0.10</td>
<td>0.90</td>
</tr>
<tr>
<td>75 ≤ 90</td>
<td>4</td>
<td>0.10</td>
<td>1.00</td>
</tr>
</tbody>
</table>

A) Number of students on the x-axis and cumulative relative frequency on the y-axis
B) Minutes on homework on the x-axis and relative frequency on the y-axis
C) Minutes on homework on the x-axis and cumulative relative frequency on the y-axis
D) There is not enough data to decide.

Answer: C

Objective: (2.3) Construct Ogive

Tell whether the statement is true or false.

15) A variable whose values are observed by counting something must be a discrete variable.

A) True    B) False

Answer: A

Objective: (2.1) *Know Concepts: Variables and Data

Construct the requested graph.

16) Construct a bar graph for the relative frequencies given.

<table>
<thead>
<tr>
<th>Blood type</th>
<th>Frequency</th>
<th>Relative frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>22</td>
<td>0.44</td>
</tr>
<tr>
<td>A</td>
<td>19</td>
<td>0.38</td>
</tr>
<tr>
<td>B</td>
<td>6</td>
<td>0.12</td>
</tr>
<tr>
<td>AB</td>
<td>3</td>
<td>0.06</td>
</tr>
</tbody>
</table>

A) Relative Frequency

B) Blood Type
A graphical display of a data set is given. Identify the overall shape of the distribution as (roughly) bell-shaped, triangular, uniform, reverse J-shaped, J-shaped, right skewed, left skewed, bimodal, or multimodal.

17) A stem-and-leaf diagram is given below for the annual precipitation in one U.S. city for 28 consecutive years. Precipitation data are in inches.

Answer: B

Objective: (2.4) Identify Shape of Distribution
18) Two dice were rolled and the sum of the two numbers was recorded. This procedure was repeated 400 times. The results are shown in the relative frequency histogram below.

![Histogram of dice roll sums]

A) Bell-shaped  B) Triangular  C) Left skewed  D) Right-skewed
Answer: B

Objective: (2.4) Identify Shape of Distribution

Classify the data as either discrete or continuous.

19) What type of data is provided by the statement "Helen finished in 10th place in the ice dancing competition"?
   A) Discrete  B) Continuous
Answer: A

Objective: (2.1) Classify Data as Discrete or Continuous

A graphical display of a data set is given. State whether the distribution is (roughly) symmetric, right skewed, or left skewed.

20) A frequency histogram is given below for the weights of a sample of college students.

![Frequency histogram of college student weights]

A) Right skewed  B) Left skewed  C) Symmetric
Answer: C

Objective: (2.4) Classify Distribution as Symmetric or Skewed