Statistics and Probability Vocabulary
frequency
count
frequency distribution
relative frequency
relative frequency distribution
univariate
bivariate
central tendency
mean
median
mode
weighted mean
quartiles
percentiles
dispersion
range
outliers
interquartile range
standard deviation/sample standard deviation/population standard deviation
standardization
normal distribution
intersection
union
disjoint
mutually exclusive
universal set
factorial
probability
permutation
combination
1) The probability of selecting a green ball from a bag is 1 out of 8, assuming there are 8 balls in the bag. If you select 3 balls with replacement, what is the probability of at least one of them being green?
   a) 0.125
   b) 0.67
   c) 0.33
   d) 0.875

2) Kate and Kyle are playing a game. They must flip a coin and spin a spinner that has 12 equal sections numbered 1 through 12. What is the probability that Kyle will flip a heads and spin the spinner and get an even number?
   a) $\frac{1}{4}$
   b) $\frac{1}{10}$
   c) $\frac{1}{2}$
   d) $\frac{1}{6}$

3) Jenny has a bowl of M&M's that has 6 brown, 3 green, 4 red, and 12 yellow M&M's. What is the probability that she will select a brown M&M after first selecting a yellow M&M and not replacing it?
   a) $\frac{1}{4}$
   b) $\frac{6}{25}$
   c) $\frac{3}{5}$
   d) $\frac{6}{24}$

4) If you roll a die three times, what is the probability of rolling only even numbers?
   a) $\frac{1}{8}$
   b) $\frac{1}{4}$
   c) $\frac{1}{6}$
   d) $\frac{1}{2}$
5) During the first four Summer Olympic games attended by the United States, these medal counts were awarded. Calculate the median number of medals won during these Olympic Games.

<table>
<thead>
<tr>
<th>Olympic Site</th>
<th>Year</th>
<th>Medal Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athens</td>
<td>1896</td>
<td>20</td>
</tr>
<tr>
<td>Paris</td>
<td>1900</td>
<td>47</td>
</tr>
<tr>
<td>St. Louis</td>
<td>1904</td>
<td>239</td>
</tr>
<tr>
<td>London</td>
<td>1908</td>
<td>47</td>
</tr>
</tbody>
</table>

a) 219  
b) 88.25  
c) 239  
d) 47

6) The figure shows a normal distribution with mean $m$ and standard deviation $d$, including approximate percents of the distribution in each of the six regions shown.

For a population of 800,000 subway riders, the numbers of subway trips taken per rider last January are approximately normally distributed with a mean of 56 trips and a standard deviation of 13 trips. Approximately how many of the riders took between 30 and 43 trips last January?

a) 60,000  
b) 110,000  
c) 160,000  
d) 210,000  
e) 270,000
7) The probability that events $E$ and $F$ will both occur is 0.42.

Quantity A: The probability that event $E$ will occur

Quantity B: 0.58
   a) Quantity A is greater.
   b) Quantity B is greater.
   c) The two quantities are equal.
   d) The relationship cannot be determined from the information given.

8) Of the 750 participants in a professional meeting, 450 are female and $\frac{1}{2}$ of the female and $\frac{1}{4}$ of the male participants are less than thirty years old. If one of the participants will be randomly selected to receive a prize, what is the probability that the person selected will be less than thirty years old?

\[ \frac{1}{8} \]
   a) \[ \frac{1}{8} \]
   b) \[ \frac{1}{3} \]
   c) \[ \frac{3}{8} \]
   d) \[ \frac{2}{5} \]
   e) \[ \frac{3}{4} \]

9) The total number of recording titles distributed by music distributors L and M is 9,300. The number of recording titles distributed by L is 7,100, and the number of recording titles distributed by M is 5,200. Which of the following statements must be true?

Indicate all such statements.
   a) More than half of the titles distributed by L are also distributed by M.
   b) More than half of the titles distributed by M are also distributed by L.
   c) No titles are distributed by both L and M.

10) Of the retail sector’s 1991 contribution to the arts, $\frac{1}{4}$ went to symphony orchestras and $\frac{1}{2}$ of the remainder went to public television. Approximately how many million dollars more did the retail sector contribute to public television that year than to symphony orchestras?

\[ \begin{align*}
   a) & \quad 5.2 \\
   b) & \quad 6.3 \\
   c) & \quad 10.4 \\
   d) & \quad 13.0 \\
   e) & \quad 19.5
\end{align*} \]