3.10 The accompanying Venn diagram describes the sample space of a particular experiment and events A and B.

![Venn diagram]

a. Suppose the sample points are equally likely. Find $P(A)$ and $P(B)$

b. Suppose $P(1) = P(2) = P(3) = P(4) = P(5) = \frac{1}{20}$ and $P(6) = P(7) = P(8) = P(9) = P(10) = \frac{2}{20}$. Find $P(A)$ and $P(B)$.

3.11 The sample space for an experiment contains five sample points with probabilities as shown in the table. Find the probability of each of the following events:

<table>
<thead>
<tr>
<th>Sample Points</th>
<th>Probabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.05</td>
</tr>
<tr>
<td>2</td>
<td>.20</td>
</tr>
<tr>
<td>3</td>
<td>.30</td>
</tr>
<tr>
<td>4</td>
<td>.30</td>
</tr>
<tr>
<td>5</td>
<td>.15</td>
</tr>
</tbody>
</table>

A: {Either 1, 2, or 3 occurs}
B: {Either 1, 3, or 5 occurs}
C: {4 does not occur}

3.14 Two fair dice are tossed, and the up face on each die is recorded.

a. List the 36 sample points contained in the sample space.
b. Assign probabilities to the sample points.
c. Find the probability of observing each of the following events:

A: {A 3 appears on each of the two dice}
B: {The sum of the numbers is even}
C: {The sum of the numbers is equal to 7}
D: {A 5 appears on at least one of the dice}
E: {The sum of the numbers is 10 or more}

3.15 Two marbles are drawn at random and without replacement from a box containing two blue marbles and three red marbles.

a. List the sample points
b. Assign probabilities to the sample points.
c. Determine the probability of observing each of the following events:

A: {Two blue marbles are drawn}
B: {A red and a blue marble are drawn}
C: {Two red marbles are drawn}