

Question 7:

Exercise 6.1.5:(b-d)

b.

$$\begin{array}{ccccccccc}
 \textcircled{13} & \textcircled{4} & \textcircled{12} & \textcircled{4} & \textcircled{4} & & & & \\
 \textcircled{1} & \textcircled{3} & \textcircled{2} & \textcircled{1} & \textcircled{1} & & & & \\
 \hline
 & & \textcircled{52} & & & & & & \\
 & & \textcircled{5} & & & & & &
 \end{array}
 =
 \begin{array}{r}
 88 \\
 \hline
 4165
 \end{array}$$

c.

$$\begin{array}{ccccccc}
 \textcircled{13} & \textcircled{4} & & & & & \\
 \textcircled{5} & \textcircled{1} & & & & & \\
 \hline
 & & \textcircled{52} & & & & \\
 & & \textcircled{5} & & & &
 \end{array}
 =
 \begin{array}{r}
 33 \\
 \hline
 16660
 \end{array}$$

d.

$$\begin{array}{ccccccccc}
 \textcircled{13} & \textcircled{4} & \textcircled{12} & \textcircled{4} & \textcircled{4} & \textcircled{4} & & & \\
 \textcircled{1} & \textcircled{3} & \textcircled{3} & \textcircled{1} & \textcircled{1} & \textcircled{1} & & & \\
 \hline
 & & \textcircled{52} & & & & & & \\
 & & \textcircled{5} & & & & & &
 \end{array}
 =
 \begin{array}{r}
 352 \\
 \hline
 833
 \end{array}$$

Exercise 6.2.4:(a-d)

a.

$$1 - \frac{\binom{39}{5}}{\binom{52}{5}} = 0.77846$$

b.

$$1 - \frac{\binom{13}{5} 4^5}{\binom{52}{5}} = 0.4929$$

c.

$$\frac{\binom{13}{1} \binom{39}{4}}{\binom{52}{5}} + \frac{\binom{13}{1} \binom{39}{4}}{\binom{52}{5}} - \frac{\binom{13}{1} \binom{13}{1} \binom{26}{3}}{\binom{52}{5}} =$$

d.

$$1 - \frac{\binom{26}{5}}{\binom{52}{5}}$$

Question 8:

Exercise 6.3.2:(a-e)

a.

Solution:

$$p(A) = \frac{6!}{7!} = \frac{1}{7}$$

$$p(B) = \frac{\frac{7!}{2!}}{7!} = \frac{1}{2}$$

$$p(C) = \frac{5!}{7!} = \frac{1}{42}$$

b.

Solution:

$$\frac{2! * 3!}{5!} = \frac{1}{10}$$

c.

Solution:

$$\frac{\frac{5!}{2!}}{5!} = \frac{1}{2}$$

d.

Solution:

$$\frac{(5 \text{ choose } 3) * 3! * 3!}{\frac{7!}{2!}} = \frac{1}{7}$$

e.

Solution:

A and B are independent.

Exercise 6.3.6:(b,c)

b.

Solution:

$$\left(\frac{1}{3}\right)^5 * \left(\frac{2}{3}\right)^5$$

c.

Solution:

$$\left(\frac{1}{3}\right) * \left(\frac{2}{3}\right)^9$$

Exercise 6.4.2:(a)

a.

Solution:

Question 9:

Exercise 6.5.2:(a,b)

a.

Solution:

$\{0, 1, 2, 3, 4\}$

b.

Solution:

Exercise 6.6.1:(a)

Exercise 6.6.4:(a,b)

Exercise 6.7.4:(a)

Question 10:

Exercise 6.8.1:(a-d)

Exercise 6.8.3:(b)
