

Name: _____
Period: _____

Date: _____
Pre-Calculus 16.1- 16.2 Review HW

Complete the following problems, showing all work.

1. In a study of 82 young (under the age of 32) drivers, 39 were men who were ticketed, 11 were men who were not ticketed, 8 were women who were ticketed, and 24 were women who were not ticketed.
 - a. If one of these subjects is randomly selected, find the probability of getting a man or someone who was ticketed.

$$\begin{aligned} P(M \text{ or } T) &= P(M) + P(T) - P(M \& T) \\ &= \frac{50}{82} + \frac{47}{82} - \frac{39}{82} = \frac{58}{82} \end{aligned}$$

- b. If one of these subjects is randomly selected, find the probability of getting a woman or someone who was not ticketed.

$$\begin{aligned} P(W \text{ or } N) &= P(W) + P(N) - P(W \& N) \\ &= \frac{32}{82} + \frac{35}{82} - \frac{24}{82} = \frac{43}{82} \end{aligned}$$

2. In the 105th Congress, the Senate consists of 9 women and 91 men. If a lobbyist for the tobacco industry randomly selects three different Senators, what is the probability that they are all men?

$$\frac{{}^{91}C_3}{{}^{100}C_3}$$

3. For a certain raffle, 845 tickets are sold.
 - a. In how many ways can four \$50 gift certificates be awarded?

$${}^{845}C_4$$

- b. In how many ways can a \$100, a \$50, a \$20, and a \$10 gift certificate be awarded?

$${}^{845}P_4$$

4. Find the probability of obtaining a number greater than 4 on a single toss of a die.

$$\frac{2}{6} = \frac{1}{3}$$

5. Find the probability of drawing an ace or a spade from a shuffled standard deck of cards.

$$P(A \text{ or } S) = P(A) + P(S) - P(A \& S) \\ = \frac{4}{52} + \frac{13}{52} - \frac{1}{52} = \frac{16}{52} = \frac{4}{13}$$

6. What is the probability of being dealt two hearts in succession, without replacement?

$$P(HH) = \frac{13}{52} \cdot \frac{12}{51} = \frac{156}{2652} = \frac{1}{17}$$

7. Three cards are dealt from a well-shuffled standard deck without replacement.

- a. What is the probability that all three cards are clubs?

$$\frac{13}{52} \cdot \frac{12}{51} \cdot \frac{11}{50} = \frac{1716}{132600} = \frac{11}{850}$$

- b. What is the probability that all three cards are red?

$$\frac{26}{52} \cdot \frac{25}{51} \cdot \frac{24}{50} = \frac{15600}{132600} = \frac{2}{17}$$

- c. What is the probability that all three cards are aces?

$$\frac{4}{52} \cdot \frac{3}{51} \cdot \frac{2}{50} = \frac{24}{132600} = \frac{1}{5525}$$

- d. What is the probability that none of the cards is an ace?

$$\frac{48}{52} \cdot \frac{47}{51} \cdot \frac{46}{50} = \frac{103776}{132600} = \frac{4324}{5525}$$

- e. What is the probability that at least one of the cards is an ace?

$$1 - \frac{48}{52} \cdot \frac{47}{51} \cdot \frac{46}{50} = \frac{1201}{5525}$$

- f. What is the probability that either one or two of the cards is an ace?

$$\frac{1201}{5525} - \frac{1}{5525} = \frac{1200}{5525} = \frac{48}{221}$$