Name ___Key___

Date _____ Period_____

Dependent Events

1. A single coin is tossed twice. Event A is having the coin land heads up on the first toss. Event B is having the coin land tails up on the second toss.

Are the two events independent or dependent? ___Indep.___

Find P(A and B) ___$(\frac{1}{2})(\frac{1}{2}) = \frac{1}{4}$___

2. Two cards are drawn from a standard 52 card deck. The first card is not placed back in the deck before the second card is drawn. Event A is drawing a queen for the first card. Event B is drawing a king for the second card.

Are the two events independent or dependent? ___Dep.___

Find P(A and B) ___$(\frac{4}{52})(\frac{4}{51}) = 0.006$___

3. Two cards are drawn from a standard deck of 52 cards. The first card is placed back into the deck before the second card is drawn. Event A is drawing a queen for the first card. Event B is drawing a king for the second card.

Are the two events independent or dependent? ___Indep.___

Find P(A and B) ___$(\frac{4}{52})(\frac{4}{52}) = 0.0059$___

4. A jar contains 12 red marbles, 16 blue marbles and 18 white marbles.

   A) Three marbles are chosen from the jar without replacement. What is the probability that **none** is white?

$$\left(\frac{28}{46}\right)\left(\frac{27}{45}\right)\left(\frac{26}{44}\right) = 0.216$$

   B) Four marbles are chosen from a jar without replacement. What is the probability that **all** are white?

$$\left(\frac{18}{46}\right)\left(\frac{17}{45}\right)\left(\frac{16}{44}\right)\left(\frac{15}{43}\right) = 0.0188$$

   C) What is the probability of drawing a red marble, then a blue marble?

$$\left(\frac{12}{46}\right)\left(\frac{16}{45}\right) = 0.093$$

   D) What is the probability of drawing a red marble, then white, then blue?

$$\left(\frac{12}{46}\right)\left(\frac{18}{45}\right)\left(\frac{16}{44}\right) = 0.038$$

5. Two cards are drawn from a standard 52 card deck. The first card is not replaced before the second card is drawn.

A) Event A is drawing a face card. Event B is drawing an ace. Find P(A and B).

$$\left(\frac{12}{52}\right)\left(\frac{4}{51}\right) = 1.81\%$$

B) Event A is drawing a 2. Event B is drawing a 10. Find P(A and B).

$$\left(\frac{4}{52}\right)\left(\frac{4}{51}\right) = 0.603\%$$

C) Event A is drawing a 7. Event B is drawing another 7. Find P(A and B).

$$\left(\frac{4}{52}\right)\left(\frac{3}{51}\right) = 0.452\%$$

6. Three cards are drawn from a standard 52 card deck. The first card is not replaced before the second card is drawn.

A) Event A is drawing an ace. Event B is drawing a face card. Event C is drawing a
7. Find P(A and B and C).

$$\left(\frac{4}{52}\right)\left(\frac{12}{51}\right)\left(\frac{4}{50}\right) = 0.145\%$$

B) Event A is drawing a king. Event B is drawing another king. Event C is drawing a third king. Find P(A and B and C).

$$\left(\frac{4}{52}\right)\left(\frac{3}{51}\right)\left(\frac{2}{50}\right) = 0.000181\%$$