

Name: _____

Period: _____

Worksheet C3: Independent vs. Dependent Events

Independent events

1. Bag A contains 9 red marbles and 3 green marbles. Bag B contains 9 black marbles and 6 orange marbles. Find the probability of selecting one green marble from bag A and one black marble from bag B.

2. Two seniors, one from each government class are randomly selected to travel to Washington, D.C. Wes is in a class of 18 students and Maureen is in a class of 20 students. Find the probability that both Wes and Maureen will be selected.

3. If there was only one government class, and Wes and Maureen were in that class of 38 students, what would be the probability that both Wes and Maureen would be selected as the two students to go to Washington? Is this still an example of independent events?

Dependent Events

4. A box contains 5 purple marbles, 3 green marbles and 2 orange marbles. Two consecutive draws are made from the box **without replacement** of the first draw. Find the probability of each event.

- a. P(orange first, green second)

- b. P(both marbles are purple)

- c. P(the first marble is purple, and the second is ANY color EXCEPT purple)

5. If you draw two cards from a standard deck of 52 cards without replacement, find:

- a. P(King first, Jack second)

- b. P(face card first, ace second)

- c. P(2 aces)

6. A six-sided die is rolled and a spinner with five equal spaces labeled A-F is spun.

a. How many outcomes are there?

b. $P(1 \text{ and } A)$

c. $P(\text{odd and } B)$

7. A card is drawn from the bag at the right.

a. How many outcomes are there?

b. $P(3 \text{ or a } 5)$

c. $P(\text{even or a prime})$

d. $P(3 \text{ or less than } 2)$

d. $P(\text{composite and } C)$

e. $P(\text{prime and } D)$

f. $P(1 \text{ and } E)$

8. In a bag there are 2 red marbles, 3 white marbles and 5 blue marbles. Once a marble is selected, it is NOT replaced. Find the following probabilities:

a. $P(\text{red, then white})$

b. $P(\text{blue, then red})$

c. $P(\text{red, red, red})$

d. $P(\text{blue, blue, white})$

9. In a bag there are 2 red marbles, 3 white marbles and 5 blue marbles. Once a marble is selected, it IS replaced. Find the following probabilities:

a. $P(\text{white, blue})$

b. $P(\text{white, white})$

c. $P(\text{blue, white, red})$

d. $P(\text{blue, blue, blue})$

10. A jar contains 4 white chips, 5 purple chips, and 1 black chip. Chips are selected randomly one at a time, and are not replaced. Find the probability of the following.

a. $P(\text{purple then black})$

b. $P(\text{black then white})$

c. $P(\text{white then purple})$

d. $P(\text{purple then white})$

e. $P(2 \text{ whites})$

f. $P(2 \text{ purples})$

g. $P(2 \text{ black chips})$

h. $P(\text{white, then purple, then black})$

i. $P(3 \text{ whites})$
