

# DEPENDENT EVENTS

NAME: \_\_\_\_\_ DIV: \_\_\_\_\_ DATE: \_\_\_\_\_

Pick out 2 Aces, in a row, from a deck of cards (without returning the first ace)

- \* 52 cards in deck
- \* 4 aces

$$\frac{4}{52} \left(\frac{1}{13}\right) \times \frac{3}{51} = \frac{3}{13 \times 51} = \frac{3}{663} = \frac{1}{221} = 0.004525 \approx 0.4\%$$

## DO ON A SEPERATE SHEET. Problems and Applications

Q# 2, 4, 6, 8

1. The 6 cards show the letters in the word CANADA.



If you choose randomly, what is the probability of choosing

- a) an A?
- b) another A if the first is not replaced?
- c) 2 As in a row if the first is not replaced?

2. There are 3 quarters and 2 dimes in a bag. What is the probability of picking in 2 picks

- a) 2 quarters if you replace the coin you picked first?
- b) 2 quarters if you do not replace the coin you picked first?
- c) 2 dimes if you replace the coin you picked first?
- d) 2 dimes if you do not replace the coin you picked first?
- e) a quarter then a dime if you replace the coin you picked first?
- f) a quarter then a dime if you do not replace the coin you picked first?
- g) a dime then a quarter if you replace the coin you picked first?
- h) a dime then a quarter if you do not replace the coin you picked first?

3. Each card shows 1 letter from the word BANANA.



- a) If 2 cards are chosen one after the other with replacement of the first, what is the probability of drawing 2 As? 2 Ns? 2 consonants?
- b) If 2 cards are chosen one after the other without replacement of the first, what is the probability of drawing 2 As? 2 Ns? 2 consonants?

4. Each card shows 1 letter from the word EXPERIMENT.



What are the probabilities of picking the following pairs of cards one after the other without replacing the first?

- a) 2 Es    b) 2 vowels    c) 2 consonants
- d) a vowel then a consonant
- e) a consonant then an E
- f) an E then a T

5. A bag contains 5 red, 3 blue, and 2 green marbles. What are the probabilities of drawing the following without replacement?

- a) a red marble then a blue marble
- b) a green marble then a blue marble
- c) 2 red marbles    d) 2 green marbles

6. A bag contains 10 cards, each carrying the name of a different Canadian province. What are the probabilities of drawing the following pairs without replacement?

- a) 2 names beginning with N
- b) a name beginning with a vowel then a name beginning with N
- c) a name beginning with P then a name beginning with N
- d) 2 names ending in A
- e) 2 names ending in vowels
- f) a name beginning with an S then a name ending in A

7. What are the probabilities of drawing the following cards, one after the other, from a shuffled deck?

- a) 2 red cards with replacement
- b) 2 red cards without replacement
- c) 2 clubs with replacement
- d) 2 clubs without replacement
- e) 2 aces with replacement
- f) 2 aces without replacement

8. There are equal numbers of red marbles and blue marbles in a bag. Is the probability of choosing 2 red marbles in 2 picks higher with or without replacement? Explain.