## Independent Events Probability

Name:

Two events are said to be **Independent** if the occurrence of the first event does  $\underline{NOT}$  affect the probability of the second event and events are independent if  $P(A) \cdot P(B) = P(A \text{ and } B)$ 

## INDEPENDENT PROBABILITY

1. Determine the following probabilities if each of the following are **independent**.

GIVEN: P(A) = 0.8 P(B) = 0.25 P(C) = 0.6

a. P(A and C) =

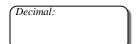


b. P(A and B and C) =

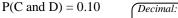


c. P(Rolling a 4 on a standard die and B) =





d. Find P(D) if D is an independent event and

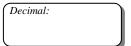




e. P(Rolling a 2 on a standard die and picking a card with a "7" on it from a standard deck of cards) =

Decimal:

f. If your chances of losing the shell game if you randomly pick is 2 in 3. What are the chances that you would lose 5 games in a row?











g. If the Atlanta Hawks free throw percentage is 82%, what is the probability that a player for the Hawks will make 2 free shots in a row?

h. The chance of rain on a random day in May in Gwinnett is about 30%. Using this empirical probability, what would you estimate the probabily of having NO rain for an entire week (7 days)?





(BONUS) Nancy estimates that the probability that a tornado will strike with in the city limits on any given year is 0.75%. What is the probability of at least one tornado touching down in the next 5 years? (*must use complements*)

Percentage:

2. GIVEN:

P(M) = 0.8

P(N) = 0.25

P(R) = 0.6

a. If the probability of P(M and N) = 0.2, are M and N independent?



b. If the probability of P(N and R) = 0.3, are N and R independent?

## **DEPENDENT PROBABILITIES**

3.	Consi	ider that 3 consecutive cards are drawn without replacement from a shuffled deck	of cards
	A.	What is the probability that the first two cards drawn are face cards?	Decimal:
1000	В.	What is the probability that the all three cards are hearts?	Decimal:
	C.	What is the probability that all three cards are a King?	Decimal:
	D.	What is the probability that all three cards are the same ?	Decimal:
4.	-	g contains 4 blue marbles, 4 red marbles, and 4 green marbles:  What is the probability of drawing 2 green marbles without replacement?  Decimal:	G 8 8 8
	R	What is the probability of drawing 3 marbles without replacement in a row of	
	Б.	the same color without replacement?  Decimal:	
5.	out of	s has 3 dimes, 4 pennies, and 2 quarters in his pocket. If each coin is equally likely f his pocket in order <b>without replacement</b> , what is the probability that he will pull ers in a row first?	
6.	are ra	cookie jar there are 10 chocolate chip cookies and 8 peanut butter cookies left. The andomly mixed together in the jar. What is the probability of pulling two of the san okies out of the cookie jar in a row without replacement?	
7.	turn i	classroom there are 7 male students and 11 female students that are taking a test. If in their test at any given time at the end of class, what is the probability that the first emale students?	