Intro to Geometry (HSS-CP.A.2)
Unit Six: Probability – Day 3 – Compound Probability (IC3)

Name: _____Key_____
Date: _____ Period: _____

Compound Events:
An event involving two or more simple events in sequence.

1. Are the following compound or simple events?

a) Flipping a coin once
Simple

b) Flipping a coin three times in a row
Compound

c) Rolling 2 dice at once
Simple

d) Rolling a die twice
Compound

e) Choosing two cards from a deck
Compound

f) Choosing a marble from a bag
Simple

Independent Events:	**Dependent Events:**
The occurrence of one event <u>does NOT</u> have an effect on subsequent events	The occurrence of one event <u>DOES</u> have an effect on subsequent events

2. Determine if the two events are independent of each other.

	Event #1	**Event #2**		
a)	The Month	The Temperature	Independent	Not Independent
b)	Your Height	Your Weight	Independent	Not Independent
c)	Your weight	Your income	Independent	Not Independent

3. Determine if the two events are independent of each other.

	Event #1	**Event #2**	
a)	Choosing a marble from bag #1, and then choosing a marble from bag #2.		I or NI
b)	Rolling an even number on a die, and then rolling it again to get a five.		I or NI
c)	Selecting a marble from a bag, replacing it, and then selecting another marble.		I or N

Multiplication Rule for Probability: AND (compound event)

Independent Events:

$P(A \text{ and } B) = P(A) \cdot P(B)$

4. The given two events, Event A and Event B are independent events.

a) P(A) = 0.2 P(B) = 0.2 P(A and B) = 0.04

$0.2(0.2) = 0.04$

b) P(A) = 0.55 P(B) = 0.1 P(A and B) = 0.055

$0.55(0.1) = 0.055$

c) P(A) = 0.85 P(A and B) = .51 P(B) = 0.6

$0.85(P(B)) = 0.51$

d) P(A) = 0.9 P(A and B) = .45 P(B) = 0.5

$0.9(P(B)) = 0.45$

5. Determine if the following are independent or not.

a) P(A) = 0.7 P(B) = 0.45 P(A and B) = 0.4 Independent **Not Independent**

$0.7(0.45) \neq 0.4$

b) P(A) = 0.5 P(B) = 0.5 P(A and B) = 0.35 Independent **Not Independent**

$0.5(0.5) \neq 0.35$

6. Determine if the event is independent or not, and determine the probability of it happening.

a) There are two bags of marbles, in Bag #1, there are 3 red and 2 green, and in Bag #2, there are 2 red and 6 green. What is the probability of selecting a green from Bag #1, and a red from Bag #2? **Independent** or Not Independent

P(G and R) = $\frac{1}{10}$

$\left(\frac{2}{5}\right)\left(\frac{2}{8}\right) = \frac{4}{40}$

b) A bag of marbles has 1 red, 1 green and 3 yellow marbles. What is the probability of selecting a yellow and then a yellow without replacement? Independent or **Not Independent**

P(Y and Y) = $\frac{3}{10}$

$\left(\frac{3}{5}\right)\left(\frac{2}{4}\right) = \frac{6}{20}$

c) Given a standard deck of cards. What is the probability of selecting a jack and then an ace without replacement? Independent or **Not Independent**

P(J and A) = $\frac{4}{663}$

$\left(\frac{4}{52}\right)\left(\frac{4}{51}\right) = \frac{16}{2652} = \frac{4}{663}$

d) A spinner has four equal color (Red, Green, Yellow, Blue) quadrants and a die has 12 sides. What is the probability of getting blue on the spinner and a factor of 12 on the die? **Independent** or Not Independent

P(B and F) = $\frac{1}{8}$

$\left(\frac{1}{4}\right)\left(\frac{6}{12}\right) = \frac{6}{48}$