



**GRADE 12 APPLIED
PROBABILITY
DEPENDENT – INDEPENDENT
WORKSHEET**

Name: _____
Date: _____

1. Are the following events dependent or independent?
 - a. Event A is 'selecting a club from the deck'. The card is recorded and returned to the deck. Event B is 'selecting a heart from the deck'.
 - b. Two cards are selected at the same time and recorded

2. An experiment consists of a single trial of selecting a marble from *each* of three bags. The probability of selecting a red marble from the first bag is $\frac{1}{4}$. The probability of selecting a red marble from the second bag is $\frac{1}{3}$. The probability of selecting a red marble from the third bag is $\frac{3}{4}$. Draw a tree diagram or use another method to generate the possible events and also calculate using the formulas the following probabilities:
 - a. $P(\text{a red is drawn from the first bag and from the second bag})$
[ie: $P(R_1, R_2, \text{Any}_3)$]
 - b. $P(\text{a red is drawn from the second and third bags but not from the first})$
[ie: $P(\bar{R}_1, R_2, R_3)$]
 - c. $P(\text{drawing a red from at least one bag})$



3. A **single** bag contains **20** marbles; **15** are **red** and **5** are **blue**. Three marbles are drawn from the bag and **not** replaced. Draw a tree and calculate using formulas the following probabilities.

- a. $P(\text{a Red is drawn on first draw and on the second draw})$
- b. $P(\text{a Red is drawn on the second and third draws but not on the first})$
- c. $P(\text{Red is drawn on **at least one** draw})$

4. A box contains three coins. One is fair, one is weighted so that the probability of getting a head is 0.3, and the third is a double-headed coin. **First** one coin is selected at random **and then** flipped.

- a. draw a probability tree
- b. find the probability of flipping a head.

Ans: 1. a. Independent b. Dependent 2. a. $1/12$ b. $3/16$ c. $7/8$
3.a. $21/38$ b. $35/228$ c. $113/114$ 4. $6/10$