Name: _____

Foundations 12: Probability Quiz #1

 $P(A \cup B) = P(A) + P(B) - P(A \cap B)$

Full credit will only be awarded for all work shown in a neat and organized manner. For probabilities, answer with percentages to 2 decimal places, if needed (e.g. 14.56%) <u>In a deck of cards there are...</u>

 52 cards total 	 26 black cards 	• 26 red cards	
	(Clubs and Spades)	(Hearts and Diamonds)	
• 13 cards of each suit	• 4 C	 4 Cards of each type 	
(Clubs, Spades, Hearts Diamond	s) (4	(A, 2-10, J, Q, K)	

- 1. A twelve-sided die (D12) is rolled.
 - a. List the event "a multiple of 4 is rolled"
 - b. List the complement of the event "a multiple of 3 is rolled"
- 2. Box 1 has a blue (B), green (G), purple (P) and red (R) ball. Box 2 has a red (R), yellow (Y) and green (G) ball. One ball is picked from Box 1 then another ball from Box 2 at random.
- a. Draw a tree diagram to show the sample space
- b. Find the odds against "exactly one red ball is chosen" in lowest terms
- c. Find the probability of "both balls are the same colour"

 d. Are the events "no red balls are chosen" and "exactly 1 red ball is chosen" complementary? Explain.

- 3. Pre-season predictions are being made for the NFL. One commentator is predicting which teams will make the playoffs. According to her, the Seahawks have a 42% chance, the odds in favor of the 49ers making the playoffs is 4:5, and the odds against the Vikings is 11:9
- a. Which team is most likely to make the playoffs?
- b. What are the odds in favor of the Seahawks making the playoffs (in lowest terms)?

- 4. A single card is drawn from a standard deck of cards. Use the formula to find the probability.
- a. P(Jack U Red card)

b. Are drawing a Jack and drawing a red card mutually exclusive? Explain how you know from you work in part a.

- 5. In a Lord Byng foods class, 81% of students like baking, 26% of students like cleaning dishes and 14% of students don't like baking or cleaning the dishes (and might want to consider a different elective...)
 - a. Draw a Venn Diagram (and fill it in as you go)
 - b. Find the probability a student chosen at random likes baking or cleaning dishes
 - c. Find the probability a student chosen at random likes baking and cleaning dishes
 - d. Find the probability a student chosen at random only likes cleaning dishes (...weird)