Name: **Statistics**

Date: **Practice Quiz 4-B**

1. For each situation, identify n, r, p, and q if applicable, or write "not a binomial experiment."

To be a binomial experiment, there must be a value of p that is the same for every roll, card, etc.

a) Two 6-sided dice both roll 5.

b) A 6-sided die and a 10-sided die both roll 5.

c) Three out of five 6-sided dice roll 1, 2, 3, or 6.

d) All five cards drawn are hearts.

2. Theo rolls eight 6-sided dice that each have three turtles, two squirrels, and one cow. For each of the following expressions, calculate the value and use a clear, complete sentence to explain what it represents in this context. Start each answer with *This is the probability of*… or with *This is the number of ways*….

a) $(1/6)^5$

This is the probability of _____.

b) $(5/6)^3$

This is the probability of _____.

c) $\binom{8}{5}$

This is the number of ways _____.

d) $\binom{8}{5}(1/6)^5(5/6)^3$

This is the probability of _____.

3. Claire has a 1-in-3 chance of winning in each round of rock-paper-scissors. Calculate the probability of each of the following. Show all steps by hand, without using decimals or percents in your work or answers.

a) Her first win is on the third round.

She loses two rounds and then wins the third.

b) Her first win is after the third round.

She loses the first three rounds.

c) She wins all three of the first three rounds.

She wins three rounds and loses zero rounds.

d) She wins exactly one of the first three rounds.

She wins one round and loses two rounds, but not necessarily in that order.

4. Lila rolls seven 4-sided dice. What is the probability that more than two of them roll 3? Show all steps by hand, without using decimals or percents in your work or answers.

Calculate P(3) + P(4) + P(5) + P(6) + P(7), or calculate the complement (the probability that no more than two of them roll 3) and subtract it from 1.