Math 206 - Quiz 1

January 24, 2018

Name key

Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (3 points) A letter is selected at random from the word *tattletale*.

   (a) What is the sample space for this experiment?

   $\{t, a, l, e\}$

   (b) Is your sample space a uniform sample space? Explain.

   No, because there are different numbers of t's compared to the other letters, the outcomes are not equally likely.

   (c) What is the event of selecting a vowel?

   $\{a, e\}$

   (d) What is the probability of selecting a vowel?

   $\frac{4}{10}$

   (e) Is your probability above theoretical or experimental? Explain.

   I'm assuming each object is equally likely: $\frac{\#\text{ of vowels}}{\#\text{ of total letters}} = \frac{4}{10}$

   (f) What is the probability of selecting a letter other than t?

   $\{a, l, e\}$ $\frac{6}{10}$

2. (1 point) A jar contains 8 blue marbles and some red marbles. There is nothing else in the jar. A marble is selected at random. The probability of selecting a red marble is 60%. How many red marbles are in the jar?

   ↳ Prob of blue = 0.40 ⇒ 40% of marbles are blue

   ⇒ 40% of what is 8 ⇒ Total # of marbles = $\frac{8}{0.40} = 20$

   ⇒ 12 are red

3. (1 point) What does it mean for two events to be mutually exclusive?

   A & B are exclusive means $A \cap B = \emptyset$