Math 206 - Quiz 2
February 12, 2014

Name key

Score _____

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

1. (2 points) A box contains the letters of the word *ASSESSED*. A letter is selected at random.

   (a) What is the sample space?

   $\{A, S, E, D\}$

   (b) Is your sample space uniform? Explain.

   No, the letters in the sample space are not equally likely: $P(\{A\}) = P(\{D\}) = \frac{1}{8}$, $P(\{S\}) = \frac{4}{8}$, $P(\{E\}) = \frac{2}{8}$

   (c) What is the probability of selecting the letter S?

   $P(\{S\}) = \boxed{\frac{4}{8}}$

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

   Four such letters $\Rightarrow$ Prob is $\boxed{\frac{4}{8}}$

2. (2 points) Suppose that A and B are events with $P(A) = 0.73$, $P(\overline{B}) = 0.64$, and $P(A \cup B) = 1$. Compute each of the following.

   (a) $P(B) = 1 - P(\overline{B}) = \boxed{0.36}$

   (b) $P(A \cap B) = P(A) + P(B) - P(A \cup B)$
   $= 0.73 + 0.36 - 1 = \boxed{0.09}$

3. (1 point) A box contains five white marbles, three black marbles, and two red marbles. How many colored marbles must be added to make the probability of randomly selecting a white marble be equal to 1/4.

   $\frac{5}{10 + x} = \frac{1}{4} \Rightarrow 10 + x = 20$

   $x = 10$

   10 colored marbles should be added