Name: _____

Classical Probability – Probability of an Event

1) A pair of fair dice is thrown. If the numbers appearing are different, find the probability p that:

   1) The sum is six

   2) An ace appears

   3) The sum is less than 4

2) Determine the probability of each event:

   1) An odd number appears in the toss of a fair die

   2) One or more heads appear in the toss of four fair coins

   3) One or both numbers exceed 4 in the toss of two fair die

3) Let $S = \{a_1, a_2, a_3\}$ and let P be the function on S where $P(a_i) = p_i$. Determine whether each of the following values of p_1, p_2, p_3 define S to be a probability space and, if not, the reason why:

   1) $p_1 = \frac{1}{4}, p_2 = \frac{1}{3}, p_3 = \frac{1}{2}$

   2) $p_1 = \frac{1}{6}, p_2 = \frac{1}{3}, p_3 = \frac{1}{2}$

   3) $p_1 = \frac{2}{3}, p_2 = -\frac{1}{3}, p_3 = \frac{2}{3}$

   4) $p_1 = 0, p_2 = \frac{1}{3}, p_3 = \frac{2}{3}$

4) A coin is weighted so that heads is three times as likely to appear as tails. Find P(H) and P(T)

5) Given the 26 – letter English alphabet. The vowels are a,e,I,o, and u. The rest are consonants.

   1) What is the probability of a vowel letter?

   2) What is the probability of a consonant letter?

   3) What is the probability of picking an English letter?

   4) What is the probability of picking the letter π?