ICM Guided Notes Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_

7.4 Using Counting Techniques in Probability

Probability = $\frac{number of favorable outcomes}{number of possible outcomes}$ P(E) = $\frac{n(E)}{n(S)}$

Example 1 – An unbiased coin is tossed six times. What is the probability that the coin will land heads…

1. Exactly two times?
2. At most 2 times?
3. On the first and the last toss?

Example 2 – Three marbles are selected at random without replacement from a jar with 3 black, 2 gray, and 3 white marbles. Find the probability that…

1. All 3 marbles are black.
2. One is gray and two are white.

Example 3 – A bin contains 100 DVDs, 10 of which are defective. If a customer selects 6 of these DVDs, find the probability that…

1. Exactly 2 are defective.
2. At least 1 is defective.

Example 4 – A student studying for a vocabulary test knows the meanings of 15 words from a list of 20. If the test has 10 words from the list, find the probability that the student will score at least 90%.