7.1 Quick Notes

1) Sample Space (S) – The set of all possible outcomes in an experiment.
Event – Set of outcomes (subset of S)

Ex) Flip a coin once S = {H, T} Flip a coin twice S = {HH, HT, TH, TT}

Roll a die S = {1, 2, 3, 4, 5, 6} Roll 2 dice S = {(1,1), (1, 2),……..(6, 6)}

2) If all outcomes in a sample space (S) are equally likely, then the Probability of an event (E) happening is given by

$$P(E) = \frac{C(E)}{C(S)} = \frac{"Successes"}{"Total"} = \frac{"Number\ of\ outcomes\ in\ E"}{"Number\ of\ outcomes\ in\ S"}$$

3) Probability Rules For any event E, $0 \le P(E) \le 1$
The Sum of the probabilities of all outcomes in a Sample Space is 1.

4) An event has a probability of 0 if it is not possible.
An event has a probability of 1 if it is guaranteed.

(BOARDWORK EXAMPLES)

1) An urn contains 8 red, 5 blue, 4 green, and one yellow ball. If we reach in and randomly pull one out, find the probability that ; a) it is red. b) it is not red. c) it is red and green. d) it is red or green. e) it is pink. f) it is not pink.

2) Roll 2 dice. Find the probability that; a) exactly one of the dice is a 2. b) the sum is 5
c) the sum is 7 d) the sum is less than 5 e) the sum is less than 10

3) Spin a spinner and roll a die. Find the product. (make a chart and find some probabilities)