PURDUE UNIVERSITY

Homework 2

Fall 2020
(Due: September 18, 2020 Friday)

Name: Elias Talcott Email: etalcott@purdue.edu

Homework is due at 11:59pm (midnight) Eastern Time. Please print this homework, write your solution, and scan the solution. Submit your homework through Gradescope. No late homework will be accepted.

Exercise 1.
Consider an experiment consisting of rolling a die twice. The outcome of this experiment is an ordered pair whose first element is the first value rolled and whose second element is the second value rolled.

(a) Find the sample space.

(b) Find the set A representing the event that the value on the first roll is greater than or equal to the value on the second roll.

(c) Find the set B corresponding to the event that the first roll is a six.

(d) Let C correspond to the event that the first valued rolled and the second value rolled differ by two. Find $A \cap C$.

Note that A, B, and C should be subsets of the sample space specified in Part (a).

A. $\Omega = \{(1,1), (1,2), \ldots, (1,6), (2,1), \ldots (6,6)\}$

B. $A = \{(1,1), (2,1), \ldots, (6,1), (2,2), \ldots, (6,2), \ldots, (3,3), \ldots, (6,3), \ldots (6,6)\}$

C. $B = \{(6,1), (6,2), (6,3), (6,4), (6,5), (6,6)\}$

D. $C = \{(1,3), (2,4), (3,5), (4,6), (3,1), (4,2), (5,3), (6,4)\}$

$A \cap C = \{(3,1), (4,2), (5,3), (6,4)\}$