

STAT 340

Chapter 9 – Practice Questions

Part I

1. A couple has two children. Assume the chances that the couple has a boy or girl are the same.

- a. What is the sample space for the genders of the 2 children?
- b. What is the sample space for the number of girls?
- c. What is the probability that the couple has one boy and a girl?
- d. What is the probability that the couple has two boys?
- e. What is the probability that the children are of the same gender?

2. A couple has 3 children. Assume the chances that the couple has a boy or girl are the same.

- a. What is the probability that the couple has exactly 2 girls?

Sample Space $S =$

$G =$ The couple has exactly 2 girls

$P(G) =$

- b. What is the probability that the couple does not have two girls?

3. Fit each probability to its description.

0.0, 0.02, 0.85, 1.0

- a. Impossible, this event will never happen:
- b. Certainly, this event will always happen:
- c. Very unlikely, but this event does happen once in a while:
- d. Likely, this event happens more often than not:

4. The following table gives the probability for grades.

A	0.25
B	0.30
C	0.20
D	0.15
F	0.05

- a. Is this a good/valid probability model?

- b. Find $P(\text{C or better})$.

5. Let X be the number of glasses of soda consumed by an adult on a typical day. The researcher found the following probability model for X .

X	0	1	2	3	4+
Probability	0.52	0.28	0.09	0.04	?

Consider the following two events.

$A = \{\text{number of glasses of soda is 1 or greater}\}$

$B = \{\text{number of glasses is less than 2}\}$

- a. What is $P(4+)$?
- b. What outcomes make up event A ? What is $P(A)$?

- c. What outcomes make up event B? What is $P(B)$?

- d. What outcomes make up the event “A or B”? What is $P(A \text{ or } B)$?

- e. Why is $P(A \text{ or } B)$ not equal to $P(A) + P(B)$?