

MATH 311 – FINAL REVIEW

27.3

Probability can take on values between 0 and 1 inclusive

Simple theoretical probability: spinner, die, coin, balls in bag

$$P(\text{not } A) = 1 - P(A)$$

28.1

Determining if outcomes are equally likely

Listing sample space and finding probabilities when outcomes are not equally likely –
by multiplying probabilities along the branches using a tree diagram

28.2

Using addition to find OR probability (being careful not to double count)

$$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B) \text{ – always works but can be modified}$$

28.3

Disjoint / mutually exclusive events

$$P(A \text{ and } B) = 0 \text{ if } A \text{ and } B \text{ are disjoint}$$

$$P(A | B) = 0 \text{ if } A \text{ and } B \text{ are disjoint}$$

Independent events

$$P(A \text{ and } B) = P(A) \times P(B) \text{ if } A \text{ and } B \text{ are independent}$$

$$P(A | B) = P(A) \text{ if } A \text{ and } B \text{ are independent}$$

Finding probability of multiple independent events using multiplication

Probability of 2-dice situations

28.4

Finding conditional probability: $P(A | B)$

Finding probability using contingency tables

Finding probability for dependent situations using tree diagrams

$$P(A \text{ and } B) = P(A) \times P(B | A) = P(B) \times P(A | B) \text{ if } A \text{ and } B \text{ are dependent}$$

29.2

Bias in sampling: *how is the sample different, how does the difference affect the results*

Sampling types: *simple random, self-selected, convenience, stratified random, cluster, systematic.* (listed on exam)

32.1 – 32.2

Variability in sampling

Predicting parameters given a statistic and a sample size using $\pm \frac{1}{\sqrt{n}}$.

30.1 – 30.2

Reading information off a bar graph or histogram, pie chart or stem & leaf plot

Determining an appropriate graph for a data set

30.3

Interpreting percentile scores

Calculating quartile scores: Q1, Q2 (median), and Q3

Inner-quartile range (IQR) and outliers

5-number summary

Reading information off box-plots

Percentages associated with box-plots

30.4

Calculating mean, median, & mode

How outliers affect means and medians, comparing means and medians

Calculating standard deviation

Comparing data sets using standard deviation

30.5

Identifying normal vs. skewed distributions

Percentages associated with normal distributions

Finding z-scores

Using z-scores (or percentiles) to compare between data sets