

MTH 105 Exam 1 Review

Exam 1 is an in class exam given Wednesday 10/20. Exam 1 will cover Chapter 1 and Sections 8.1, 8.2 and 8.4 of your book.

Study ideas: Review homework, quiz problems, in class worksheets, and work through the suggested Mindscapes at the end of this sheet. Do not just read over completed work - redo the problems without looking at the answer and time yourself. The test is taken in a timed environment so not only should you know how to do these problems, you should be able to do them quickly. If you have completed your online homework, you may view the solutions by going to the problem and clicking "show solution". If you have not completed your homework you should do so. Additional problems may be found in the Mindscapes at the end of each section and suggested problems are given at the end of this sheet. Many of the problems have hints or even a solution in the back of the book so you can check your work.

You will be allowed a calculator (no cell phones) and one 3×5 notecard with notes on both sides for the exam.

The following topics will be emphasized:

- problem solving (chapter 1)
- percentage problems
 - given a part and a whole find the percentage
 - * For example: I have 40 green and 20 red chips. What percentage of my chips is red?
 - given a whole and percentage find a part
 - * For example: The tv cost \$1200 but was on sale for 30% off. What was the new price of the tv?
 - given a part and a percentage find the whole
 - * I have a jar of red and blue M&M's. 80 are red and 20% are blue. How many total M&M's do I have?
- basic probability
 - understand that a probability is a number between 0 and 1
 - find the probability of an event by listing all equally likely outcomes and looking at the number of outcomes in your event divided by the total number of outcomes
 - find the probability of an event by computing the probability of the opposite of the event and subtracting that from 1
 - find the probability of an event using a relative frequency count from an experiment
 - understand the law of large numbers
 - find the probability of multiple (non-related) events occurring at the same time (e.g. (event A) AND (event B)) using the multiplication principle

- find the probability of (event A) OR (event B) using the idea of the complementary event (e.g. $1 - (\text{not event A})$ AND (not event B))
- find the probability of an event by using counting methods (e.g. count the total number of outcomes in the event and divide by the total number of possible outcomes) without having to write down the sample space
- basic counting techniques
 - be able to count how many ways there are to arrange k things chosen from a set of n where order matters and where order doesn't matter, for example:
 - * How many ways can you choose 5 people from a class of 40?
 - * How many 3 number lock combinations can be made on a lock with 15 numbers?
 - * How many ways can you arrange 8 people in a row?

Suggested Mindscapes:

- Section 1.4 Mindscapes 1 – 5, 8, 11, 15
- Section 8.1 Mindscapes 1, 3, 4, 5, 18 – 22
- Section 8.2 Mindscapes 1 – 7, 10, 12, 14, 15 – 21, 26 – 28, 30, 32, 33, 34, 37
- Section 8.4 Mindscapes 1 – 7, 10 – 27