

MATH 119 HW #1: CHAPTERS 1-4

SPRING 2012 – 4TH EDITION OF TRIOLA'S ESSENTIALS

Write your name and class time and clearly separate sections! See syllabus.

Show work where appropriate, and use “good form and procedure,” as in class!

This is due when you take Quiz 1.

Graded out of 10 points.

“*” denotes “See Hint/Comment below.”

Answers to the “evens” may be provided later in class (not online).

“Look at” means “skim, but you don’t have to do.”

The answers to “My Problems” are at the end.

Homework exercises are typically given under “Basic Skills and Concepts” and “Beyond the Basics.” I will often tell you how to round off on test problems; on the homework, you may peek at the answers so that your rounding method is consistent with the book’s. Note: The book and the solutions manual sometimes use “=” (is equal to) when they should use “ \approx ” (is approximately).

You should read the introductory “Chapter Problems” and Margin Essays; they’re interesting and useful!

CHAPTER 1

No homework.

This is an interesting and useful chapter, but we will discuss the ideas in this chapter throughout the course, particularly when we discuss polls in Chapter 7. Section 1-4 has interesting questions that will test your critical thinking abilities. Section 1-5 discusses survey sampling when conducting a study.

CHAPTER 2

Section 2-2: #3, 11, 15, 19*

On #19, use the classes 1.0-1.1, 1.2-1.3, 1.4-1.5, 1.6-1.7, and 1.8-1.9 (in mg).

Look at (meaning skim these, but you don't have to do these): #17, 32.

Section 2-3: #5*, 11*

On #5, if you're off by 1 or 2, that's OK.

On #11, use your answer to 2-2, #19, including the classes.

Look at: #21.

Section 2-4: #6, 13, 15

On #15, also give the corresponding percents and central angles.

Look at: #3, 23, 27, 28.

Section 2-5: No homework.

If you enjoyed our discussion on the first day of class, you may want to skim this section on bad graphs.

CHAPTER 3

Section 3-2: #4, 5*, 7*, 9*, 21, 29, 33

Do: My Problem #1

All exams in Stan Marsh's class are graded out of 100 points. Stan gets quiz grades of 65, 83, 80, and 90. He gets a 92 on his final exam. Find Stan's weighted class average if the quizzes each count for 15% and the final counts for 40% of the overall grade. (The answer is given at the end of this assignment.)

Do: My Problem #2

So far, your grade record in a class looks like this:

Exam	% of overall grade	Your score (out of 100)
Quiz 1	10%	55
Quiz 2	10%	50
Midterm 1	20%	65
Midterm 2	20%	40
Final	40%	<i>a</i>

What must you get on the Final to get at least 70% in the class overall?

Do: My Problem #3

If every student in a class is given 10 extra points on a test, what happens to the mean, median, mode, and midrange of the test scores for the class?

Read the Round-Off Rule on p.88 (which applies to Chapter 3, though we may alter them for later chapters). Remember that my test instructions always take precedence!

Read Example 7 on pp.89-90.

On #5, 7, 9: Read the instructions in blue for Exercises 5-20 above #5 on p.94. Be prepared to look around the book like this for instructions on how to do problems!

Look at: #8, 10, 12, 17. If you're curious, look at 36-40 on other types of means.

Section 3-3: #3, 4, 5*, 18* (Hint: $s \approx 0.86$ tons), 33, 34, 35, 36

On #5, 18: Find s , not σ . The solutions manual uses a different formula from the one I used in class. There are some computational advantages to the manual's formula (Formula 3-5 on p.101), but it's harder to remember and understand.

Read the Round-Off Rule on p.100 (which applies to Chapter 3, though we may alter them for later chapters). My test instructions take precedence over everything.

Note on pp.104-105: The Range Rule of Thumb is very rough. Do **not** use it on tests!

Look at the coefficient of variation on pp.108-109.

We will **not** be finding standard deviations from frequency tables. (Look at #29, 30.)

Section 3-4: #1, 3, 4, 5, 9, 11, 13, 29* (boxplot only; see note below)

On #29: Use the following 5-number summary. Min: 664, Q_1 : 706, Median: 766, Q_3 : 810, Max: 836.

Do: My Problem #4

Find the percentiles corresponding to the following deciles and quartiles: D_3 , D_7 , Q_1 , and Q_3 .

Read: p.134 under Cooperative Group Activities on the anchoring effect in psychology.

CHAPTER 4

Section 4-2: #2, 3, 13, 14, 15, 17, 19, 21, 25, 31, 33

Do: My Problem #5

All 50 students in a class arrive for a particular exam, but only 40 of them arrive on time. What is the probability that a randomly selected student in the class arrives late to the exam?

Read the rounding rules for these Ch.4 problems on p.145. Remember that my test instructions always take precedence!

Look at the Roulette example on p.147. As always, look at the fascinating margin essays; several of these are on gambling here.

Look at: #35.

Section 4-3: #2, 5, 6, 7, 9, 11, 15, 17, 18, 19, 20, 31, 33, 35, 40

Do: My Problem #6

A gambler rolls a pair of standard dice. One die is colored red; the other is colored green.

a) Find the probability that the red die will come up “odd” or a “2.”

b) Find the probability that the red die will come up “odd” or the green die will come up a “2.”

Look at: #41, 42.

Section 4-4: #3, 4, 8, 9, 10, 12, 13, 21-27 all*

Do: My Problem #7 (classic joke in academia)

Five students arrive late for a test. They claim that they rode in the same (four-wheeled) car, and it blew a tire. The professor adds the following question to their tests before handing them out: “Which tire blew out?” Assuming that they are lying and they each choose the tire randomly, what is the probability that all five students pick the same tire?

Do: My Problem #8 (the famous “Birthday Problem”!)

If five people are randomly selected, find the probability that they have five different birthdays (i.e., no two people share the same birthday). Ignore leap years. We will do a related experiment in class!

Do: My Problem #9

A room has six Democrats and seven Republicans (and no one else). A reporter walks in and randomly selects three people to interview, one-by-one. Find the probability that the interviewer selects two Democrats first and then a Republican.

On #21-27 all: This means you do 21, 27, and **all** the problems in between. Also, on #25 and #26, see the margin essay on p.152. In spite of this, we will typically assume that boys and girls are equally likely among all births.

Look at: #31.

Section 4-5: #4, 5, 7, 9, 11, 13, 19, 20, 21

Do: My Problem #10 (tricky!)

I flip two coins behind your back and tell you that at least one of the coins came up heads. What is the probability that both coins came up heads? Hint: Consider the sample space.

Look at: #16, 27, 29

Section 4-6: Covered on the second homework assignment and quiz.

Section 4-7: No homework.

Answers to My Problems

#1: 84.5%

#2: at least 97 points (round up)

#3: They all increase by 10 points.

#4: $D_3 = P_{30}$, $D_7 = P_{70}$, $Q_1 = P_{25}$, and $Q_3 = P_{75}$.

#5: $1/5$, or 0.200

#6: a) $2/3$, or about 0.667; b) $7/12$, or about 0.583

#7: $1/256$, or about 0.00391

#8: about 0.973

#9: $35/286$, or about 0.122

#10: $1/3$