

Math 109 Fall 2016 Homework 1, due 9/30/2016 in HW boxes
in the basement of AP&M by 3 pm

(All exercise and page numbers refer to Eccles.)

1 Reading and practice

Read Chapters 1-4 of Eccles. Do the end of chapter exercises as you read, and check your work against the answers in the back. These exercises are to test your understanding and they are not to be written up and handed in.

2 Exercises to submit on Friday 9/30

2.1 exercises from the text

In the Problems I which begin on page 53, do #1,2,3,4,5.

Remarks: Exercises 1-3 can just be justified by demonstrating the truth tables, and a formal proof is not required.

For exercise 4, write out the proof carefully following the examples of proofs given in class and in the textbook. Your proof should be written in complete sentences, and should not be a string of symbols with no words. Remember to use the definition we have given of “divides” which is purely a notion about integers. Use only integers in your proof and do not introduce fractions (rational numbers). Do not show scratchwork.

2.2 additional exercise not from the text

A. Write out formal proofs of the following statements, following the same advice about style as for exercise 4 above.

Let a and b be integers such that a divides b .

(a) Prove that if a is even, then b is even. Is the converse to this statement true? why or why not?

(b). Prove that if b is odd, then a is odd. (Hint: consider the contrapositive).