

## MTH 553 Quiz #1 - Topics to review

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You are expected to know how to write numbers and do basic number operations the same way Egyptians and Babylonians did. You do not have to memorize the symbols – reference sheets with symbols and Babylonian tables will be allowed on the quiz.

Problems to review:

### *Egyptian arithmetic:*

Pg. 7, Exercises 1-3, problems #2, 3, 4, 5, 6

Pg. 15, Exercises 1-5, problems #1, 3, 4, 5, 6

Pg. 11, Exercises 1-4, problems #1, 2, 3, 4, 5

Pg. 20, Exercises 1-6, problems #1, 2, 3, 4, 6

### *Babylonian arithmetic:*

Pg. 47, Exercises 2-2, problems #1, 2, 3, 4, 5

pg. 245, Exercises 8-9, problems #4, 5

Pg. 50, Exercises 2-3, problems #2, 3

pg. 252 Exercises 8-10, problems #2, 4

Pg. 41 Exercises 2-4, problem #1

The main focus, however, will not be on the “mechanics” of computations; understanding of big ideas will be more important. Therefore, please make sure that you also review the following ideas we talked about (“ch” stands for “chapter” as numbered in our book):

1. What are the major characteristics of the Egyptian and Babylonian number system?
2. Explain the missing addend approach to subtraction. Which historical culture used this approach? Demonstrate on an example. (ch 1-4 on pg. 8)
3. How does Egyptian multiplication work? (ch 1-5 on pg. 12)
4. Explain the measurement approach to division. Which historical culture used this approach to division? Demonstrate on an example. (ch 1-5, pg. 15)
5. Compare how solving  $24 + 37$  and  $43 - 5$  is different in our and Egyptian system. Which one is easier TO LEARN and why?
6. Egyptian fractions: What is special about fractions the Egyptians used? (ch 1-6 on pg 15)
7. Explain how to generate the Babylonian table of reciprocals (for example, how to get Babylonian expansions for  $\frac{1}{2}$ ,  $\frac{1}{7}$ ,  $\frac{1}{8}$  etc.)
8. Explain how Babylonian extraction of roots works. ( #1 on pg. 51)
9. How can you tell a rational number from irrational by its decimal expansion? Why any repeating decimal is a rational number? Why any non-repeating non-terminating decimals is an irrational number?