# Unit 1, Chapter 0 Exercises

*Complete the following Chapter Review Problems (not in the textbook).*

**1. Euclidean algorithm.** Euclid wrote one of the first known algorithms around 300 BC, and it's still in use today! Refer to Figure 0.2 (on Page 3) of the textbook to find the GCD of the following numbers. Use the provided tables to show the values of M, N, and R after each step. There may be more rows than needed. **Circle or * the final answer in each table.**

| **12 and 18** | | |
|---|---|---|
| **M** | **N** | **R** |
| | | |
| | | |
| | | |

| **1000 and 5040** | | |
|---|---|---|
| **M** | **N** | **R** |
| | | |
| | | |
| | | |

| **21 and 34** | | |
|---|---|---|
| **M** | **N** | **R** |
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| **34 and 55** | | |
|---|---|---|
| **M** | **N** | **R** |
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**2. Big Ideas.** From"7 Big Ideas" from Section 0.4 of the textbook, select one idea and explain what is important about it and make good use of examples.

**3. Name that chapter.** Use the Table of Contents and Section 0.3 to match the topics on the right with their corresponding chapters on the left. Each chapter is referenced only one time.

| | | |
|---|---|---|
| 1. Data Storage | _____ | how algorithms are represented and discovered |
| 2. Data Manipulation | _____ | what problems can/cannot be solved, and why |
| 3. Operating Systems | _____ | how data is organized on disk; relational model |
| 4. The Internet | _____ | the layer between hardware and applications |
| 5. Algorithms | _____ | the mathematics of modeling and rendering |
| 6. Programming Languages | _____ | how data is organized in computer memory |
| 7. Software Engineering | _____ | CS meets psychology, biology, and linguistics |
| 8. Data Abstractions | _____ | different paradigms; compilers vs interpreters |
| 9. Database Systems | _____ | 1's and 0's, logic gates, and digital circuits |
| 10. Computer Graphics | _____ | software life cycle, large software projects |
| 11. Artificial Intelligence | _____ | how computers are connected to each other |
| 12. Theory of Computation | _____ | machine language and program execution |