

Discrete Structures I: Number Theory: Divisors

Textbooks: Ensley & Crawley: Chapter 2.2

Johnsonbaugh: Chapter 5.1

Instructions: Work on homework assignments to further familiarize yourself with the topics in the class. The answers are provided for these problems. You can work with other students as desired. Turn in your work on canvas to be given a grade for completion (homework will not be checked for correctness; you need to verify this yourself.)

Upload each homework assignment to its own “dropbox” on Canvas.

This document is not formatted to be written on; do your homework on a separate sheet of paper.

Number Theory: Divisors

Ensley & Crawley: Chapter 2.2

Johnsonbaugh: Chapter 5.1

1. Find $\gcd(m, n)$ for each of the following.
 - a. $\gcd(131, 13)$
 - b. $\gcd(100, 92)$
 - c. $\gcd(66, 132)$

2. Find $\text{lcm}(m, n)$ for each of the following.
 - a. $\text{lcm}(5, 4)$
 - b. $\text{lcm}(20, 76)$
 - c. $\text{lcm}(53, 3)$

Answer key

1. Find $\gcd(m, n)$ for each of the following.
 - a. $\gcd(131, 13)$.
131's factors: 1 and 131.
13's factors: 1 and 13
 $\gcd(131, 13)$: 1.
 - b. $\gcd(100, 92)$.
100's factors: 1, 2, 4, 5, 10, 20, 25, 50, 100
92's factors: 1, 2, 4, 23, 46, 92
 $\gcd(100, 92)$: 4
 - c. $\gcd(66, 132)$.
66's factors: 1, 2, 3, 6, 11, 22, 33, 66
132's factors: 1, 2, 3, 4, 6, 11, 12, 22, 33, 44, 66, 132
 $\gcd(66, 132)$: 66
2. Find $\text{lcm}(m, n)$ for each of the following.
 - a. $\text{lcm}(5, 4) = 20$
 - b. $\text{lcm}(20, 76) = 380$
 - c. $\text{lcm}(53, 3) = 159$