MATH 4/51001
Homework #2
Due: Friday, September 15

Reading:

For Mon., September 11: §1.3
For Wed., September 13: §1.4

Problems to turn in:

§1.1: 4(a,d), 6(a,d), 9(a), 10.

§1.2: 8, 16.

I. (a) Find the prime factorizations of 540 and 840 and use them to compute the GCD $(540, 840)$ and the LCM $[540, 840]$, and verify that $(540, 840) \cdot [540, 840] = 540 \cdot 840$.

(b) Use the given prime factorizations to find the GCD and LCM of

$$a = 2^5 \cdot 5^3 \cdot 7^4 \cdot 13^8 \text{ and } b = 2^7 \cdot 3^4 \cdot 7^3 \cdot 11^{17}.$$

II. Show that if $a \mid c$ and $b \mid c$, and $(a, b) = d$, then $ab \mid cd$.
[Hint: Write $d = an + bm$ for integers n and m, then multiply by c.]

Problems to be aware of:

§1.1: **7**, 8, **11**, 12, **19**, **20**.
§1.2: 11, 12, 14, **17**, 18.

[Problems in **bold** contain results we will assume and use in the course.]