

## Math 206 — Euclidean algorithm

**Problem 1.** Find the following greatest common divisors.

- a.  $\gcd(600, 136)$
- b.  $\gcd(252, 105)$
- c.  $\gcd(270, 192)$
- d.  $\gcd(2016, 1000)$
- e.  $\gcd(1071, 462)$

**Problem 2.** Prove that if  $a \mid b$  and  $a \mid c$  then  $a \mid (bx + cy)$  for any  $x, y \in \mathbb{Z}$ .

**Problem 3.** Prove that if  $a, b \in \mathbb{Z}^+$  such that  $a \mid b$  and  $b \mid a$  then  $a = b$ .