

$$\text{GCD}(675, 210) = 15$$

Euclid's algorithm

$$675, 210, 45, 30, 15$$

$$45 = 675 \bmod 210$$

$$= 675 - (675 \div 210) 210$$

$$= 675 - 3 \times 210 \quad (1)$$

$$30 = 210 \bmod 45$$

$$= 210 - (210 \div 45) 45$$

$$= 210 - 4 \times 45 \quad (2)$$

$$15 = 45 \bmod 30$$

$$15 = 45 - (45 \div 30) 30$$

$$15 = 45 - 30 \quad (3)$$

③

$$15 = 45 - 30$$

②

$$15 = 45 - (210 - 4 \times 45)$$

$$\begin{aligned} 15 &= 45 - 210 + 4 \times 45 \\ &= 5 \times 45 - 210 \end{aligned}$$

①

$$15 = 5 \times (675 - 3 \times 210) - 210$$

$$15 = 5 \times 675 - 15 \times 210 - 210$$

$$15 = 5 \times 675 - 16 \times 210$$

$$\begin{aligned} \text{GCD}(675, 210) \\ &= \end{aligned}$$

$$5 \times 675 - 16 \times 210$$