Dr. Z.'s Number Theory Homework assignment 8

1. Use the Euclidea algoithm to find

i. $gcd(77, 143)$ **ii.** $gcd(190, 46)$ **iii.** $gcd(1001, 500)$

2. Find

i. $gcd(10, 20, 70, 90)$ **ii.** $gcd(6, 9, 25)$ **iii.** $gcd(35, 49, 77)$

3. Find out whether it is possible to express 1 as a linear combination $1 = ma + nb$ for some integers m and n, and if it is, find it.

i. $a = 55$, $b = 8$ **ii.** $a = 100$, $b = 55$ **iii.** $a = 1001$, $b = 85$ **iv.** $a = 21$, $b = 13$.