MAT-255– Number Theory Spring 2024 In Class Work January 26

Your Name: _____ Group Members: _____ _____

Problem 1 *Find the greatest common divisors of the pairs of integers below and write the greatest common divisor as a linear combination of the integers.*

(a) $(21, 28)$

(b) $(32, 56)$

(c) $(0, 113)$

(d) $(78, 708)$

Pause for more lecture.

Problem 2 *Let p be prime.*

(a) *If $(a, b) = p$, what are the possible values of (a^2, b)? Of (a^3, b)? Of (a^2, b^3)?*

(b) *If $(a, b) = p$ and $(b, p^3) = p^2$, find (ab, p^4) and $(a + b, p^4)$.*