Math 255 - Spring 2018
Homework 4

This homework is due on Monday, February 12.

1. Let a, b, and c be integers. Furthermore, assume that neither a nor b are zero. Prove that if $c \mid ab$ and $(c, a) = d$, then $c \mid db$.

2. Let a be any integer. Show that $(2a + 1, 9a + 4) = 1$.

3. Use the Euclidean algorithm and back-substitution to give an integer solution to the equation $299x + 247y = 13$.

Extra problem for graduate credit:

4. Let a, b and c be integers. Show that if $(a, b) = 1$ and $c \mid (a+b)$, then $(a, c) = (b, c) = 1$.