MATH 2320 – Discrete Mathematics Assignment #6
Fall 2011

Instructions

- Answer each question completely; justify your answers.
- This assignment is due at 14:00 on Thursday November 3rd in Assignment Box #23.

1. Find integers q and r with $0 \leqslant r < |b|$ such that $a = qb + r$:
   (a) $a = 123$, $b = 5$
   (b) $a = 234$, $b = -5$
   (c) $a = -8121$, $b = 7$
   (d) $a = -8762$, $b = -19$
2. Let a and b be integers that are not both zero. Prove that $\gcd(a, a + b) = \gcd(a, b)$.
3. Let $a = 7686$ and $b = 915$. Let g be the greatest common divisor of a and b.
   (a) Find g.
   (b) Find integers m and n such that $ma + nb = g$.
4. Let $a = 876$ and $b = 1915$. Let g be the greatest common divisor of a and b.
   (a) Find g.
   (b) Find integers m and n such that $ma + nb = g$.