MATH 2320 – Discrete Mathematics   Assignment #7
Fall 2011

Instructions

- Answer each question completely; justify your answers.
- This assignment is due at 17:00 on Thursday November 10th in Assignment Box #23.

1. Let $a = 81876$ and $b = 1198$. Let g be the greatest common divisor of a and b.

   (a) Find g.

   (b) Find integers m and n such that $ma + nb = g$.

   (c) What is the least common multiple of a and b?

2. Find integers x and y such that $154x + 260y = 4$.

3. Show that there is no integral solution to $196x + 260y = 3$.

4. Prove: if $k \in \mathbb{N}$ then $\gcd(3k + 2, 5k + 3) = 1$.

5. Find the prime decompositions for:

   (a) $n = 123456$

   (b) $n = 5000$

6. Exercise 4.3.9.

7. Exercise 4.3.26, part (b).

8. Exercise 4.3.32, parts (b) and (c).

9. Exercise 4.3.35.