MEMORIAL UNIVERSITY OF NEWFOUNDLAND

DEPARTMENT OF MATHEMATICS AND STATISTICS

FALL 2005 | **Pure Mathematics 3370** **Assignment 3** | DUE: FRIDAY SEPTEMBER 30, 2005

Marks

[5] 1. If $a \mid c$ and $b \mid c$ and $(a, b) = 1$, prove that $ab \mid c$.

[10] 2. Solve the Diophantine equations (a) $41x + 18y = 1241$ and (b) $802x + 239y = 58035$. Find the positive solutions, if any.

[5] 3. When a man cashed a cheque, the clerk mistook the number of cents for the number of dollars, and vice versa. After spending \$7.69, the man discovered that he still had precisely three times as much money as the amount for which the cheque was originally written. What is the smallest amount for which the cheque could have been written?

[5] 4. Find the smallest positive value of x and the corresponding y that is a solution of the Diophantine equation $1024x - 15625y = 8404$. (This value for x is the solution of the famous *coconut problem* which is problem # 33 at the end of Chapter 2 of your text.)

The assignments are on my home page: **http://www.math.mun.ca/∼drideout**.

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