C&O 370
HOMEWORK 1

Due: Friday, September 29, 1995 Sect. 1, Thursday, September 28, 1995 Sect. 2

Reading

Chapter 2	(pp. 48-83)	Solving Linear Programs
Chapter 4	(pp. 157-181)	Duality Thoery
Appendix B	(pp. 690-703)	Linear Programming in Matrix Form

Problems

1.1. Solve the product mix problem given in class using MATLAB to implement the revised simplex method refined by Bland's pivot rule.

1.2. Consider the following linear program:

$$\begin{array}{llcrcrcl}
(P) & \text{maximize} & z = & 3x_1 & - & 4x_2 & & \\
 & \text{subject to} & & x_1 & + & 2x_2 & \geq & 2 \\
 & & & 3x_1 & + & x_2 & \geq & 4 \\
 & & & x_1 & - & x_2 & \leq & 1 \\
 & & & x_1 & + & x_2 & \leq & 3 \\
 & & & x_1 & & & \geq & 0 \\
 & & & & & x_2 & \geq & 0.
\end{array}$$

(a) Solve (P) using MATLAB to implement the (two-phase) revised simplex method refined by Bland's rule.

(b) Solve (P) using MATLAB to implement the criss-cross method refined by Bland's rule.

(c) Verify the optimality of your solution to (P).

Case Study #1. Do #10, pp. 35-36 of text.