2009 MANG. SCI

Max $3x_1 + 2.96x_2 + 2.6x_3$

Current	value	x_1	x_2	x_3	s_1	s_2	s_3		
		3	2.96	2.6	0	0	0		
s_1	0	0.4	0.5	0.72	1	0	0	30	$\frac{30}{0.5} = 60$
s_2	0	0.2	0.1	0.66	0	1	0	20	$\frac{20}{0.2} = 100$
s_3	0	$\boxed{1}$	1	0.8	0	0	1	40	$\frac{40}{1} = 40$
z_j		0	0	0	0	0	0		
$c_j - z_j$		$\boxed{3}$	2.96	2.6	0	0	0		

x_1 in, s_3 out: ~~went~~ :

$r_2 - 0.2r_3$ $\quad r_1 - 0.4r_3$

Current bas	value	x_1	x_2	x_3	s_1	s_2	s_3			
		3	2.96	2.6	0	0	0			
s_1	0	0	0.1	0.4	1	0	-0.4	14	$\frac{14}{0.4}$	35
s_2	0	0	-0.1	$\boxed{0.5}$	0	1	-0.2	12	$\frac{12}{0.5}$	24
x_1	3	1	1	0.8	0	0	1	40	$\frac{40}{0.8}$	50
z_j		3	3	2.4	0	0	3	120		
$c_j - z_j$		0	-0.04	$\boxed{0.2}$	0	0	-3			

x_3 in s_2 out went : $\quad r_2 \div 0.5 \quad r_3 - 0.8r_2 \quad r_1 - 0.4r_2$

Current bas	value	x_1	x_2	x_3	s_1	s_2	s_3	
		3	2.96	2.6	0	0	0	
s_1	0	0	0.18	0	1	-0.8	-0.24	4.4
x_3	2.6	0	-0.2	1	0	2	-0.4	24
x_1	3	1	1.16	0	0	-1.6	1.32	20.8
z_j		3	2.96	2.6	0	0.4	2.92	124.8
$c_j - z_j$		0	0	0	0	-0.4	-2.92	

Optimal has been reached when values in $c_J - z_J$ row are ≤ 0 and all rhs are positive

There may be many other optimal basic solutions

Can obtain a basic feasible solution by setting x_1, x_2, x_3 to a non zero value

For alternate optimum basic solution the $c_J - z_J$ row will equal zero for one or more non-basic variable

x_2 has value of 0, thus it can be introduced

Bring in x_2 into solution x_1 leave 24.44 or 17.3.

Choose largest positive value in $c_J - z_J$ row. Here of 18 3/6
Calculate ratios for u_3 for u_3 will be entering.