

Original

# 1.5.5, 3-digit calculations.

$$\begin{bmatrix} .0055 & .095 & 960 & 5000 \\ .0011 & .01 & 112 & 600 \\ .0093 & .025 & 560 & 3000 \end{bmatrix}$$

P.P.  $\rightarrow$   $\begin{bmatrix} .0093 & .025 & 560 & 3000 \\ .0055 & .095 & 960 & 5000 \\ .0011 & .01 & 112 & 600 \end{bmatrix}$

kill (2,1)  $m = \frac{.0055}{.0093} = .591398 \rightarrow .591$

m-row1:  $.005496, .014775, 330.96, 1773$   
 $\downarrow \qquad \qquad \downarrow \qquad \qquad \downarrow \qquad \qquad \downarrow$   
 $.00550, .0148, 331, 1770$

row2 - m-row1:  $0, .0802, 629, 3230$

kill (3,1)  $m = \frac{.0011}{.0093} = .1182795 \rightarrow .118$

m-row1:  $.0010974, .00295, 66.08, 354$   
 $\downarrow \qquad \qquad \downarrow$   
 $.00110, .00295, 66.1, 354$

row3 - m-row1:  $0, .00705, 45.9, 246$

row:  $\begin{bmatrix} .0093 & .025 & 560 & 3000 \\ 0 & .0802 & 629 & 3230 \\ 0 & .00705 & 45.9 & 246 \end{bmatrix}$

kill (3,2)  $m = \frac{.00705}{.0802} = .0935162 \rightarrow .0935$

m-row2:  $0, .0074987, 58.8115, 302.005$   
 $\downarrow \qquad \qquad \downarrow \qquad \qquad \downarrow$   
 $0, .00750, 58.8, 302$

$$row3 - 11 \cdot row2 \rightarrow 0, 0, -12.9, -56$$

$$row2 \left[ \begin{array}{cccc} .0093 & .025 & 560 & 3000 \\ 0 & .0802 & 629 & 3230 \\ 0 & 0 & -12.9 & -56 \end{array} \right]$$

$$so \quad z = \frac{-56}{-12.9} = 4.34108 \rightarrow 4.34$$

$$.0802y + (629)(4.34) = 3230$$

$$.0802y + 2730 = 3230$$

$$\Rightarrow .0802y = 3230 - 2730 = 500$$

$$\Rightarrow y = \frac{500}{.0802} = 6234.414 \rightarrow 6230$$

$$.0093x + (.025)(6230) + (560)(4.34) = 3000$$

$$.0093x + 156 + 2430 = 3000$$

$$.0093x = 414$$

$$x = \frac{414}{.0093} = 44516.129 \rightarrow 44500$$

$$(44500, 6230, 4.34)$$

column-scales

$$\begin{bmatrix} 11 & 95 & 80 & 5000 \\ 2.2 & 10 & 9.33 & 600 \\ 18.6 & 25 & 46.7 & 3000 \end{bmatrix}$$

P.P. →

$$\begin{bmatrix} 18.6 & 25 & 46.7 & 3000 \\ 11 & 95 & 80 & 5000 \\ 2.2 & 10 & 9.33 & 600 \end{bmatrix}$$

kill (2,1) :  $m = \frac{11}{18.6} = .591398 \rightarrow .591$

m.row 1 : 10.9926, 14.775, 27.5997, 1773  
 11.0, 14.8, 27.6, 1770

row 2 - m.row 1 : 0, 80.2, 52.4, 3230

kill (3,1) :  $m = \frac{2.2}{18.6} = .1182795 \rightarrow .118$

rounding  
 right  
 away

m.row 1 : 2.19, 2.95, 5.51, 354  
 row 3 - m.row 1 : 0, 7.05, 3.82, 246

now

$$\begin{bmatrix} 18.6 & 25 & 46.7 & 3000 \\ 0 & 80.2 & 52.4 & 3230 \\ 0 & 7.05 & 3.82 & 246 \end{bmatrix}$$

kill (3,2) :  $m = \frac{7.05}{80.2} = .0879$

m.row 2 : 7.05, 4.61, 284  
 row 3 - that : 0, -.79, -38

now

$$\begin{bmatrix} 18.6 & 25 & 46.7 & 3000 \\ 0 & 80.2 & 52.4 & 3230 \\ 0 & 0 & -.79 & -38 \end{bmatrix}$$

$$z = \frac{-38}{.79} = 48.101265 \rightarrow 48.1$$

$$\begin{aligned} 80.2y &= 3230 - (48.1)(52.4) \\ &= 3230 - 2520.44 \\ &= 3230 - 2520 \\ &= 710 \end{aligned}$$

$$y = \frac{710}{80.2} = 8.85287 \rightarrow 8.85$$

$$\begin{aligned} 18.6x &= 3000 - (25)(8.85) - (46.7)(48.1) \\ &= 3000 - 221.25 - 2246.27 \\ &= 3000 - 221 - 2250 \\ &= 529 \end{aligned}$$

$$x = \frac{529}{18.6} = 28.44086 \rightarrow 28.4$$

$$(28.4, 8.85, 48.1)$$