

Solution to Section 1.4 Problem 45

Math 250

September 16, 2013

The RREF form of the matrix is

$$\begin{bmatrix} 1 & 0 & \frac{6}{5} & 18 \\ 0 & 1 & \frac{8}{5} & 32 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

So the solution is

$$\begin{bmatrix} 18 - \frac{6}{5}z \\ 32 - \frac{8}{5}z \\ z \end{bmatrix}$$

We need $18 - \frac{6}{5}z \geq 0$ and $32 - \frac{8}{5}z \geq 0$ because the proportion cannot be negative. So $z = 15$ is the maximum possible.