

## Math 1160 – Section 2.2 Answer Key

10. No solution (2<sup>nd</sup> row of matrix becomes the equation  $0 = 1$ )

$$\begin{bmatrix} 1 & -2 & -3 \\ 0 & 0 & 1 \end{bmatrix}$$

12. Infinite Number of Solutions

$$\begin{aligned} x &= 6y + 12 \\ y &= \text{any value} \end{aligned}$$

16. Infinite Number of Solutions

$$\begin{aligned} x &= 3y + 2 \\ y &= \text{any value} \\ z &= 4 \end{aligned}$$

18. No solution (3<sup>rd</sup> row of matrix becomes the equation  $0 = 1$ )

20. Infinite Number of Solutions

$$\begin{aligned} x &= (-1/2)w + 11/2 \\ y &= (1/2)w - 5/2 \\ z &= 6 \\ w &= \text{any value} \end{aligned}$$

30. She must buy the same number of \$7 and \$13 plants, up to 7 of each type, and the rest must be \$10 plants.

$x$  = number of \$7 plants  
 $y$  = number of \$10 plants  
 $z$  = number of \$13 plants

$$\begin{cases} 7x + 10y + 13z = 150 \\ x + y + z = 15 \end{cases}$$

$$\begin{bmatrix} 1 & 0 & -1 & 0 \\ 0 & 1 & 2 & 15 \end{bmatrix}$$

$$\begin{aligned} x - z &= 0 \\ y + 2z &= 15 \end{aligned}$$

$$\begin{aligned} x &= z \\ y &= -2z + 15 \\ z &= \text{any value between 0 and 7} \end{aligned}$$