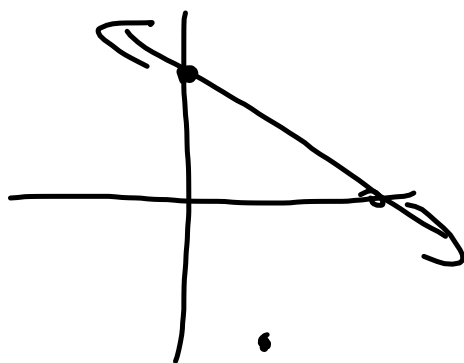


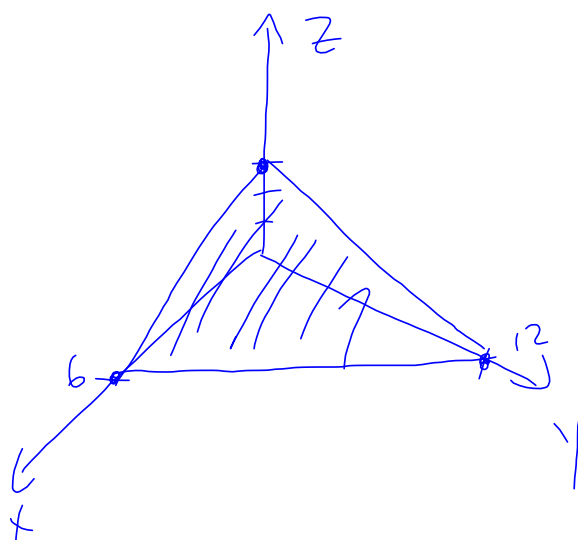
$$3x - 2y = 5 \implies y = \text{[sketch of a line]}$$

$$x + 4y = -2 \implies y = \text{[sketch of a line]}$$

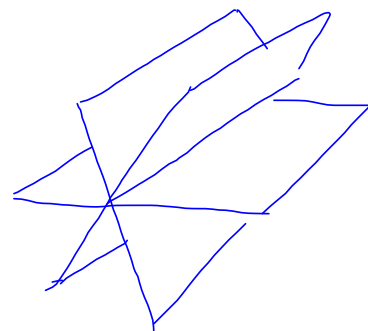
(x, y)
 $(2, -5)$



$$2x + y + 4z = 12$$



x	y	z
0	0	3
0	+12	0
6	0	0



$$\begin{aligned} x + 3y - z &= -3 \\ 3x - y + 2z &= 1 \\ 2x - y + z &= -1 \end{aligned}$$

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

pivot



$-3R_1 + R_2 \rightarrow R_2$
 $-2R_1 + R_3 \rightarrow R_3$

$$\begin{bmatrix} 1 & 3 & -1 & -3 \\ 0 & -10 & 5 & 10 \\ 0 & -7 & 3 & 5 \end{bmatrix}$$

$R_2 \div -10 \rightarrow R_2$

$$\begin{bmatrix} 1 & 3 & -1 & -3 \\ 0 & 1 & -\frac{1}{2} & -1 \\ 0 & -7 & 3 & 5 \end{bmatrix}$$

$$\xrightarrow{7R_2 + R_3 \rightarrow R_3} \begin{bmatrix} 1 & 3 & -1 & -3 \\ 0 & 1 & -\frac{1}{2} & -1 \\ 0 & 0 & -\frac{1}{2} & -2 \end{bmatrix} \xrightarrow{-2R_3 \rightarrow R_3} \begin{bmatrix} 1 & 3 & -1 & -3 \\ 0 & 1 & -\frac{1}{2} & -1 \\ 0 & 0 & 1 & 4 \end{bmatrix}$$

$$\begin{array}{l} R_3 + R_1 \rightarrow R_1 \\ \frac{1}{2}R_3 + R_2 \rightarrow R_2 \end{array} \xrightarrow{\quad} \begin{bmatrix} 1 & 3 & 0 & 1 \\ 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 4 \end{bmatrix} \xrightarrow{-3R_2 + R_1 \rightarrow R_1} \begin{bmatrix} 1 & 0 & 0 & -2 \\ 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 4 \end{bmatrix}$$

$$3x - 2y + 5z = 15$$

$$4x - 3y + z = 9$$

$$5x + 2y + 3z = 9$$

$$\begin{array}{c}
 x \quad y \quad z \\
 \left[\begin{array}{ccc|c}
 3 & -2 & 5 & 15 \\
 4 & -3 & 1 & 9 \\
 5 & 2 & 3 & 9
 \end{array} \right] \xrightarrow{-5R_2 + R_1 \rightarrow R_1} \left[\begin{array}{ccc|c}
 -17 & 13 & 0 & -30 \\
 4 & -3 & 1 & 9 \\
 5 & 2 & 3 & 9
 \end{array} \right]
 \end{array}$$

$$\underline{-3R_2 + R_3 \rightarrow R_3} \rightarrow \begin{bmatrix} -17 & 13 & 0 & -30 \\ 4 & -3 & 1 & 9 \\ -7 & 11 & 0 & -18 \end{bmatrix}$$

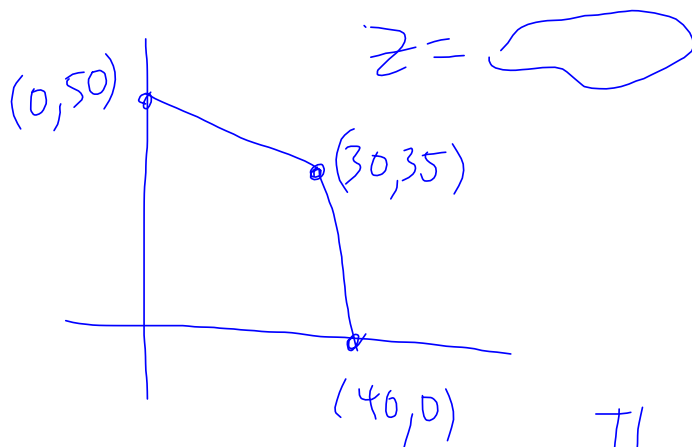
8th Ed

3.2: $4a, b, 6a, c$

$\underbrace{\hspace{10em}}$
4 tables, 4 sentences

$$\underline{\text{Suppose}} \rightarrow \begin{matrix} & x & y & z \\ \begin{bmatrix} -17 & 13 & 0 & -30 \\ 4 & -3 & 1 & 9 \\ 0 & -5 & 0 & 10 \end{bmatrix} \end{matrix}$$

$$\begin{aligned} -5y &= 10 \\ y &= 2 \end{aligned}$$



(x, y)	$z = 30x + 20y$
$(0, 50)$	1000
$(30, 35)$	~
$(40, 0)$	1200

$$\begin{pmatrix} 1 & * & * & * & * \\ 0 & 1 & * & * & * \\ 0 & 0 & 1 & * & * \end{pmatrix}$$

The maximum value z is
 _____ at (\quad , \quad) .

