

1 –

$$F = 100x + 150y$$

$$500x + 800y \geq 10000$$

$$100x + 150y \leq 3000$$

$$10x + 15y \leq 200$$

$$x, y \geq 0$$

Forma Normal:

$$F = 100x + 150y$$

$$500x + 800y - vf1 = 10000$$

$$100x + 150y + vf2 = 3000$$

$$10x + 15y + vf3 = 200$$

$$x, y, vf1, vf2, vf3 \geq 0$$

2 –

$$F = 5x + 7y + 4z$$

$$10x + 15y + 8z \geq 500$$

$$x \leq 40 \quad y \geq 30$$

$$x, y, z \leq 60$$

Forma Normal: $F = 5x + 7y + 4z$

$$10x + 15y + 8z - vf1 = 500$$

$$x + vf2 = 40$$

$$y - vf3 = 30$$

$$x + vf4 = 60$$

$$y + vf5 = 60$$

$$z + vf6 = 60$$

3 –

$$F = 10x + 7y + 4z$$

$$2x + 1.5y + z \leq 100$$

$$x \geq 20$$

$$y + z \leq z$$

$$x \leq 2y$$

Forma Normal:

$$F = -10x - 7y - 4z$$

$$2x + 1.5y + z + vf1 = 100$$

$$x - vf2 = 20 \quad y = 0$$

$$x - 2y + vf3 = 0$$

4 –

$$F = 8x + 6y + 10z$$

$$5x + 3y + 6z \leq 120$$

$$2x + 3y + 1z \leq 60$$

$$x \geq 5 \quad y \geq 3$$

Forma Normal:

$$F = -8x - 6y - 10z$$

$$5x + 3y + 6z + vf1 = 120$$

$$2x + 3y + z + vf2 = 60$$

$$x - vf3 = 5 \quad y - vf4 = 3$$

$$-x - y + z + vf5 = 0$$

5 –

$$F = 200x + 300y$$

$$50x + 40y \geq 200$$

$$30x + 60y \geq 180$$

$$20x + 30y \geq 150$$

$$200x + 300y \leq 3000$$

$$x \leq 2y$$

Forma Normal:

$$F = 200x + 300y$$

$$50x + 40y - vf1 = 200$$

$$30x + 60y - vf2 = 180$$

$$20x + 30y - vf3 = 150$$

$$200x + 300y + vf4 = 3000$$

$$x - 2y + vf5 = 0$$

6 –

$$F = 0.05x + 0.10y$$

$$x + y = 500$$

$$x \geq 150 \quad x \geq 100$$

$$100x + 200y \geq 80000$$

Forma Normal:

$$F = 0.05x + 0.10y$$

$$x + y = 500 \quad x - vf1 = 150$$

$$x - vf2 = 100$$

$$100x + 200y - vf3 = 80000$$

7 –

$$F = 10x + 15y \quad 2x + 3y \leq 30$$

$$4x + 2y \leq 40$$

$$500x + 700y \leq 5000$$

$$10x + 15y \geq 100$$

Forma Normal:

$$F = -10x - 15y$$

$$2x + 3y + vf1 = 30$$

$$4x + 2y + vf2 = 40$$

$$500x + 700y + vf3 = 5000$$

$$10x + 15y - vf4 = 100$$

8 –

$$F = x + y + z$$

$$0.5x + 0.3y + z \leq 1000$$

$$0.1x + 0.05y + 0.2z \geq 50$$

$$x \geq 2y$$

$$y \leq 500$$

Forma Normal:

$$F = -x - y - z$$

$$0.5x + 0.3y + z + vf1 = 1000$$

$$0.1x + 0.05y + 0.2z - vf2 = 50$$

$$x - 2y - vf3 = 0$$

$$y + vf4 = 500$$

9 –

$$10x + 8y \geq 100$$

$$32x + 16y \geq 400$$

$$4x + 8y \geq 200$$

$$x, y \geq 0$$

Forma Normal:

$$10x + 8y - vf_1 = 100$$

$$32x + 16y - vf_2 = 400$$

$$4x + 8y - vf_3 = 200$$