

### Exercise 3

حالات خاصة في طريقة الرسم

#### 1- Unbounded Solution

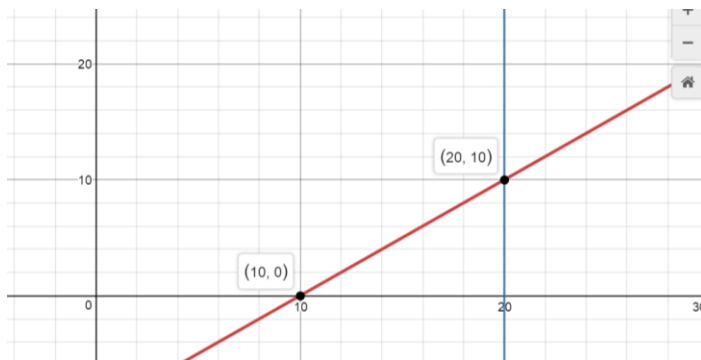
$$\text{Max } Z = 2X_1 + X_2$$

Subject to

$$X_1 - X_2 \leq 10$$

$$2X_1 \leq 40$$

$$X_1 \geq 0, X_2 \geq 0$$



#### 2- Infeasible (No Solution)

$$\text{Max } Z = 200X_1 + 300X_2$$

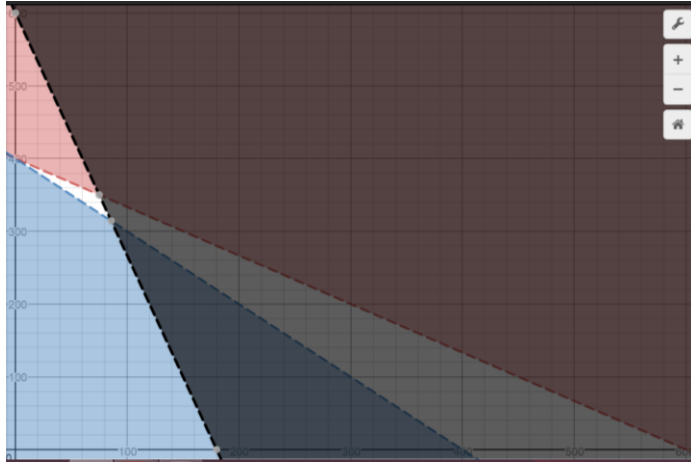
Subject to

$$0.2X_1 + 0.3X_2 \geq 120$$

$$0.1X_1 + 0.1X_2 \leq 40$$

$$0.5X_1 + 0.15X_2 \geq 90$$

$$X_1 \geq 0, X_2 \geq 0$$



### 3-Multiple Optimal solution

1-  $\text{Max } Z = 200X_1 + 400X_2$

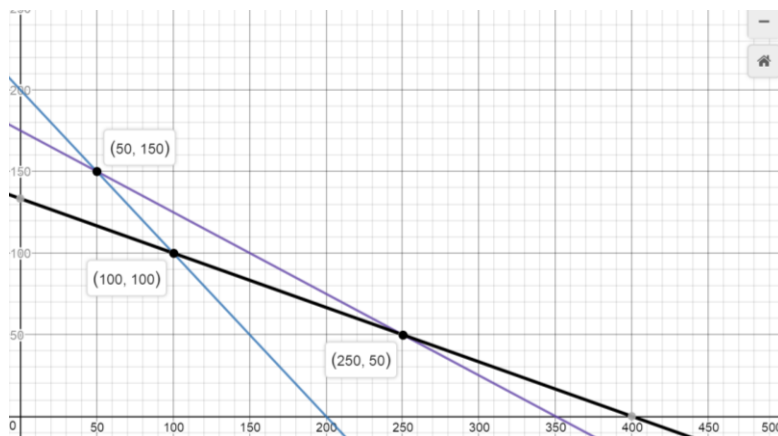
Subject to

$$X_1 + X_2 \geq 200$$

$$X_1 + 3X_2 \geq 400$$

$$X_1 + 2X_2 \leq 350$$

$$X_1 \geq 0, X_2 \geq 0$$



$(X_1, X_2)$	Z
(100,100)	60000
(50,150)	70000
(250,50)	70000