

Maximize $Z_1^1 = 2x_1 + x_2$

$$s.t. \quad 1/5x_1 + 4/5x_2 \leq 19/5$$

$$2x_1 + 5x_2 \leq 20$$

$$2/5x_1 + 5/5x_2 \leq 20/5$$

$$0/5x_1 + 2/5x_2 \geq 2/5$$

$$x_1 + 2x_2 \geq 2 \quad (2)$$

$$1/5x_1 + 2/5x_2 \geq 2/5$$

$$2/5x_1 + 0/5x_2 \leq 20/5$$

$$2x_1 + x_2 \leq 20$$

$$2/5x_1 + 1/5x_2 \leq 20/5$$

$$x_1, x_2 \geq 0$$

$$x_1^* = 1/2, \quad x_2^* = 0, \quad Z_1^{*1} = 19/4$$

Maximize $Z_1^1 = 1/5x_1 + 0/5x_2$

$$s.t. \quad 1/5x_1 + 4/5x_2 \leq 19/5$$

$$2x_1 + 5x_2 \leq 20$$

$$2/5x_1 + 5/5x_2 \leq 20/5$$

$$0/5x_1 + 2/5x_2 \geq 2/5$$

$$x_1 + 2x_2 \geq 2 \quad (1)$$

$$1/5x_1 + 2/5x_2 \geq 2/5$$

$$2/5x_1 + 0/5x_2 \leq 20/5$$

$$2x_1 + x_2 \leq 20$$

$$2/5x_1 + 1/5x_2 \leq 20/5$$

$$x_1, x_2 \geq 0$$

$$x_1^* = 1/2, \quad x_2^* = 0, \quad Z_1^{*1} = 12/2$$

Maximize $Z_2^1 = 2/5x_1 + 1/5x_2$

$$s.t. \quad 1/5x_1 + 4/5x_2 \leq 19/5$$

$$2x_1 + 5x_2 \leq 20$$

$$2/5x_1 + 5/5x_2 \leq 20/5$$

$$0/5x_1 + 2/5x_2 \geq 2/5$$

$$x_1 + 2x_2 \geq 2 \quad (3)$$

$$1/5x_1 + 2/5x_2 \geq 2/5$$

$$2/5x_1 + 0/5x_2 \leq 20/5$$

$$2x_1 + x_2 \leq 20$$

$$2/5x_1 + 1/5x_2 \leq 20/5$$

$$x_1, x_2 \geq 0$$

$$x_1^* = 1/2, \quad x_2^* = 0, \quad Z_2^{*1} = 20/5$$

