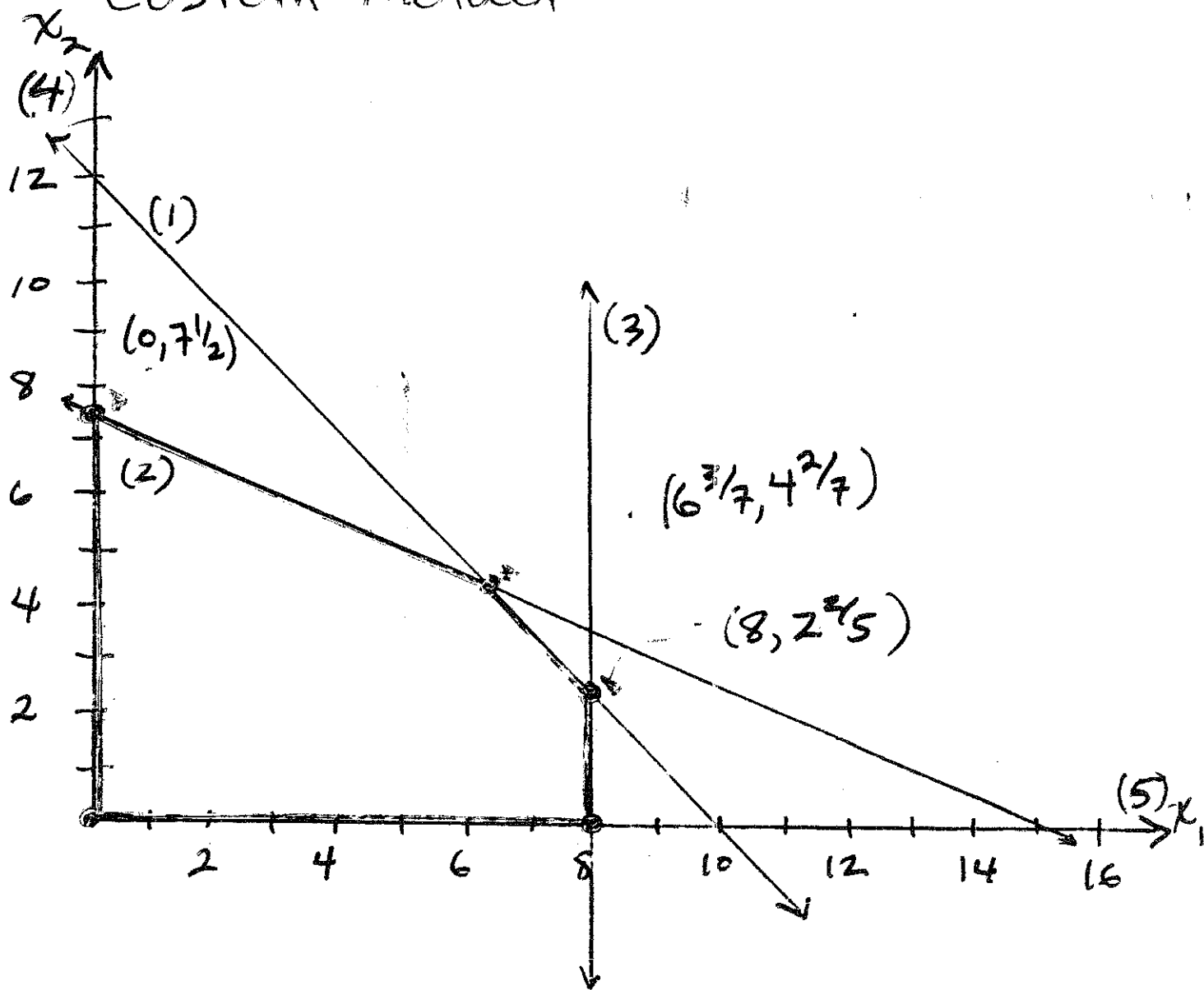


# Custom Molder



- (1)  $6x_1 + 5x_2 \leq 60$
- (2)  $x_1 + 2x_2 \leq 15$
- (3)  $x_1 \leq 8$
- (4)  $x_1 \geq 0$
- (5)  $x_2 \geq 0$

## Formulation: Inspection Problem

Step 1: The d.v. are the # of inspectors of each grade. Let

$$x_1 = \# \text{ grade 1 inspectors}$$

$$x_2 = \# \text{ grade 2 inspectors}$$

Step 2: The objective is to minimize cost. (per day or per hour?)

Cost of inspection:

$$4 \text{ \$/hr} \cdot 8 \text{ hr/day} \cdot x_1$$

$$+ 3 \text{ \$/hr} \cdot 8 \text{ hr/day} \cdot x_2$$

Error Cost:

$$\left. \begin{array}{l} (.02 \cdot 25) \text{ error pieces/hr} \\ + (.05 \cdot 15) \text{ error pieces/hr} \end{array} \right\} \cdot 2 \text{ \$/error piece} \cdot 8 \text{ hr/day}$$

Adding and Simplifying we get

$$\text{Total Cost: } 40x_1 + 36x_2$$

Step 3: Constraint on supply of inspectors:

$$0 \leq x_1 \leq 8, \quad 0 \leq x_2 \leq 10$$

Constraint on demand for output:

$$8 \text{ hr/day} \cdot 25 \text{ pieces/hr} \cdot x_1 + 8 \cdot 15 \cdot x_2 \geq 1800$$

