- objective value aka target variable
- decision variables aka input variables (sometimes subject to input constraints)
  - ↳ constraints are "non-binding" if does not affect optimal solution
  - ↳ constraints are "binding" does affect optimal solution
- feasible solution vs. optimal solution
- objective function puts target variable in terms of inputs
- sensitivity analysis answers "how does the optimal solution change when inputs change"
- optimal solutions only occur <u>one or more corner points</u>

EXAMPLE

maximize: $80x_1 + 129x_2$ s.t. $5x_1 + 6x_2 \leq 10{,}000$; $x_1 + 2x_2 \leq 3{,}000$; $0 \leq x_1 \leq 600$; $0 \leq x_2 \leq 1200$

Objective (aka target) fnc. | constraint #1 | constraint #2 | explicit min/max constraints

① $5x_1 + 6x_2 \leq 10{,}000 \Rightarrow f(x_1, x_2 = 0) \leq 10{,}000 \xrightarrow{10{,}000/5} x_1 \leq 2000$

$\Rightarrow f(x_1 = 0, x_2) \leq 10{,}000 \xrightarrow{10{,}000/6} x_2 \leq 1666.7$

② $x_1 + 2x_2 \leq 3{,}000 \Rightarrow x_1 = 3000 - 2x_2$

$\Rightarrow x_2 = 1500 - 0.5x_1$

implicit min/max constraints (constraint #1)

implicit min/max constraints (constraint #2)