

$$\max\{-z\} = 10y_1 + 6y_2 + 15y_3$$

s.t.

$$s_1 = 2 - y_1 - y_2 - 3y_3$$

$$s_2 = 3 + y_1 + 2y_2 + 4y_3$$

$$s_3 = 4 - y_1 - 3y_2 - 5y_3$$

$$s_1, s_2, s_3, y_1, y_2, y_3 \geq 0$$

\therefore all $b_i > 0$

\therefore we can use simplex method to solve it

$$\Rightarrow \max\{-z\} = 20 - 10s_1 - 4y_2 - 15y_3$$

$$y_1 = 2 - s_1 - y_2 - 3y_3$$

$$s_2 = 5 - s_1 + y_2 + y_3$$

$$s_3 = 2 + s_1 - 2y_2 - 2y_3$$

$$y_1, y_2, y_3, s_1, s_2, s_3 \geq 0$$

$$\therefore \min z_d = 20 \quad \#$$