b) Dual problem: Minimize $9y_1 + 54y_2$

Subject to $4y_1 + y_2 \geq 3$

$-y_1 + 2y_2 \geq -4$

$6y_1 - y_2 \geq 5$

$y_1 \geq 0$, y_2 unrestricted

Dual solution: $y_1 = \frac{10}{9}$

$y_2 = \frac{-13}{9}$

Check feasibility: $4(\frac{10}{9}) - \frac{13}{9} = 3 \geq 3$ ✓

$\frac{-10}{9} - \frac{26}{9} = -4 \geq -4$ ✓

$6(\frac{10}{9}) + \frac{13}{9} = \frac{73}{9} \geq 5$

$y_1 = \frac{10}{9} \geq 0$ ✓

Check optimality: $9(\frac{10}{9}) + 54(\frac{-13}{9}) = -68$,

which is optimum value of primal

[From final tableau, +68 is optimal of problem of minimizing $-(3x_1 - 4x_2 + 5x_3)$,

So -68 is optimal of problem of maximizing $3x_1 - 4x_2 + 5x_3$]