29.3 -6

$$\begin{aligned} \text{maximize } & 5x_1 - 3x_2 \\ & x_1 - x_2 \leq 1 \\ & 2x_1 + x_2 \leq 2 \\ & x_1, x_2 \geq 0 \end{aligned}$$

We first convert to slack form.

$$\begin{aligned} z &= 5x_1 - 3x_2 \\ x_3 &= 1 - x_1 + x_2 \\ x_4 &= 2 - 2x_1 - x_2 \end{aligned}$$

The nonbasic variables are x_1 and x_2. Of these, only x_1 has a positive coefficient in the objective function, so we must choose $x_e = x_1$. Both equations limit x_1 by 1, so we'll choose the first one to rewrite x_1 with. Using $x_1 = 1 - x_3 + x_2$ we obtain the new system

$$\begin{aligned} z &= 5 - 5x_3 + 2x_2 \\ x_1 &= 1 - x_3 + x_2 \\ x_4 &= 2x_3 - 2x_2 \end{aligned}$$

Now x_2 is the only nonbasic variable with positive coefficient in the objective function, so we set $x_e = x_2$. The last equation limits x_2 by 0 which is most restrictive, so we set $x_2 = x_3 - 0.5x_4$. Rewriting, our new system becomes

$$\begin{aligned} z &= 5 - 3x_3 - x_4 \\ x_1 &= 1 - 0.5x_4 \\ x_2 &= x_3 - 0.5x_4 \end{aligned}$$

Every nonbasic variable now has negative coefficient in the objective function, so we take the basic solution $(x_1, x_2, x_3, x_4) = (1, 0, 0, 0)$. The objective value this achieves is 5.