$z = 3x_1 + 3x_2 + 13x_3 \to \max$

$-3x_1 + 6x_2 + 7x_3 \le 8$

$6x_1 - 3x_2 + 7x_3 \le 8$

$x_i \in \{0,1,2,3,4,5\}$

$\begin{cases} -3x_1 + 6x_2 + 7x_3 \le 8 \\ 6x_1 - 3x_2 + 7x_3 \le 8 \end{cases}$ "$-$" $\Rightarrow 9x_1 - 9x_2 \le 0 \Rightarrow 0 \le x_1 \le x_2$

"$+$": $3x_1 + 3x_2 + 14x_3 \le 16 \Rightarrow 0 \le 3x_1 + 3x_2 \le 16 - 14x_3 \Rightarrow 14x_3 \le 16 \Rightarrow 0 \le x_3 \in Z \Rightarrow x_3 \in \{0,1\}$

a) $x_3 = 0$

$\begin{cases} z = 3x_1 + 3x_2 \to \max \\ -3x_1 + 6x_2 \le 8 \\ 6x_1 - 3x_2 \le 8 \\ x_i \in \{0,1,2,3,4,5\} \end{cases}$

$0 \le 3x_1 + 3x_2 \le 16,\ 0 \le x_1 \le x_2 \le 5$

$\max:\ x_1 + x_2 = 5$

$x_1 = 0, x_2 = 5, x_3 = 0 \Rightarrow z = 15$

$x_1 = 1, x_2 = 4, x_3 = 0 \Rightarrow z = 15$

$x_1 = 2, x_2 = 3, x_3 = 0 \Rightarrow z = 15$

b) $x_3 = 1$

$\begin{cases} z = 3x_1 + 3x_2 + 13 \to \max \\ -3x_1 + 6x_2 \le 1 \\ 6x_1 - 3x_2 \le 1 \\ x_i \in \{0,1,2,3,4,5\} \end{cases}$

$0 \le 3x_1 + 3x_2 \le 2,\ 0 \le x_1 \le x_2 \le 5$

$x_1 + x_2 = 0 \Rightarrow x_1 = x_2 = 0, x_3 = 1 \Rightarrow z = 13$

So, solutions are:

$(0,5,0), (1,4,0), (2,3,0), z_{\max} = 15$