\[ \sum F_x = F_x = 0, \quad \sum F_y = F_y - 3 + 21.3 - 12.3 = 0 \]
\[ \Rightarrow F_y = -6\text{ lb} \]

\[ \sum F_z = 0 \Rightarrow F_z = 0 \]

\[ \sum M_{cut_x} = M_x + 12 = 0 \Rightarrow M_x = -12\text{ lb-in} \]

\[ \sum M_{cut_y} = M_y = 0 \Rightarrow M_y = 0 \]

\[ \sum M_{cut_z} = M_z - 3(10) + 21.3(16) - 12.3(34) = 0 \]
\[ \Rightarrow M_z = 107.4\text{ lb-in} \]
\[ \Sigma F_x = F_x = 0 \Rightarrow F_x = 0 \quad \Sigma F_y = -F_y - 2 - 4 = 0 \]
\[ \Sigma F_z = F_z = 0 \Rightarrow F_z = 0 \quad \Rightarrow F_y = -6 \text{ lb} \]
\[ \Sigma M_{cut_x} = -4(3) - N_x = 0 \Rightarrow N_x = -12 \text{ lb-in} \]
\[ \Sigma M_{cut_y} = -N_y = 0 \Rightarrow N_y = 0 \]
\[ \Sigma M_{cut_z} = -M_z + 2(18) + 4(18) = 0 \Rightarrow M_z = 108 \text{ lb-in} \]

Values for internal loads agree when analyzing left half or right half. (Note 107.4 lb-in was found, because 21.333 was rounded to 21.3, etc.)

For this problem, \( N_x = -12 \text{ lb-in} \) is a twisting moment.

For this problem, \( M_z = 108 \text{ lb-in} \) is a bending moment.