Sample Quiz Solution

Solve the equation.
\[ \log_3(x + 3) + \log_3(x + 5) = 1 \]

\[ \log_3[(x + 3)(x + 5)] = 1 \]
\[ \log_3(x^2 + 8x + 15) = 1 \]
\[ x^2 + 8x + 15 = 3^1 \]
\[ x^2 + 8x + 12 = 0 \]
\[ (x + 2)(x + 6) = 0 \]
\[ x + 2 = 0; x + 6 = 0 \]
\[ x = -2, -6 \]
\[ x = -6 \text{ is not part of the domain} \]

Therefore \( x = -2 \) is the only solution

\[ x = -2 \]