

Synthetic Division

$$\frac{3x^3 + 4x^2 - 2x - 1}{x + 4}$$

$x + 4$ negative \rightarrow

$$\begin{array}{r|rrrr} -4 & 3 & 4 & -2 & -1 \\ & \downarrow & \nearrow -12 & \nearrow 32 & \nearrow -120 \\ \hline & \underline{3} & \underline{-8} & \underline{30} & -121 \end{array}$$

$$3x^2 - 8x + 30 - \frac{121}{x + 4}$$