

Use division to find the polynomial part $q(x)$ and the remainder $r(x)$ when $p(x) = 3x^4 + 7x^3 + 2x - 1$ is divided by $x^2 + 2$.

$$\begin{array}{r}
 \\
 x^2 + 0x + 2 \quad | \quad 3x^4 + 7x^3 + 0x^2 + 2x - 1 \\
 \underline{- 3x^4 - 0x^3 - 6x^2} \\
 7x^3 - 6x^2 + 2x - 1 \\
 \underline{- 7x^3 - 0x^2 - 14x} \\
 - 6x^2 - 12x - 1 \\
 \underline{+ 6x^2 - 0x + 12} \\
 - 12x + 11
 \end{array}$$

$$q(x) = 3x^2 + 7x - 6 \quad r(x) = -12x + 11$$