

$$\frac{5x^3 + x^2 - 3x + 2}{x^2 - 2x + 5}$$

$$\begin{array}{r}
 x^2 - 2x + 5 \overline{) 5x^3 + x^2 - 3x + 2} \\
 \underline{-(5x^3 - 10x^2 + 25x)} \\
 11x^2 - 28x + 2 \\
 \underline{-(11x^2 - 22x + 55)} \\
 -6x - 53
 \end{array}$$

$$\begin{aligned}
 \frac{5x^3 + x^2 - 3x + 2}{x^2 - 2x + 5} &= 5x + 11 + \left(\frac{-6x - 53}{x^2 - 2x + 5} \right) \\
 &= 5x + 11 - \left(\frac{6x + 53}{x^2 - 2x + 5} \right)
 \end{aligned}$$