$$
\begin{array}{r}
x^2 - 2x + 2 \\
x+1 \overline{\smash{\big)}\, x^3 - x^2 + 2} \\
\end{array}
$$

$$x^3 - x^2 + 2$$

$$x^3 + x^2 \qquad \longleftarrow \quad x^2(x+1)$$

$$-2x^2$$

$$-2x^2 - 2x \qquad \longleftarrow \quad -2x(x+1)$$

$$2x+2$$

$$2x+2 \qquad \longleftarrow \quad 2(x+1)$$

$$0$$