

Quiz 1

Problem. Factor the following:

(a) $x^4 - 16$

(b) $2x^2 - 4x + 2$

(c) $x^3 - x^2 - 2x$

Solution.

(a)

$$\begin{aligned}x^4 - 16 &= (x^2)^2 - (4)^2 \\ &= (x^2 - 4)(x^2 + 4) \\ &= (x - 2)(x + 2)(x^2 + 4)\end{aligned}$$

(b)

$$\begin{aligned}2x^2 - 4x + 2 &= 2(x^2 - 2x + 1) \\ &= 2(x - 1)(x - 1)\end{aligned}$$

(c)

$$\begin{aligned}x^3 - x^2 - 2x &= x(x^2 - x - 2) \\ &= x(x - 2)(x + 1)\end{aligned}$$