

**Exercise 6**

Find the four roots of the equation  $z^4 + 4 = 0$  and use them to factor  $z^4 + 4$  into quadratic factors with real coefficients.

$$\text{Ans. } (z^2 + 2z + 2)(z^2 - 2z + 2).$$

[The wording of this question was taken from the 7th edition.]