

Complex roots of unity & polynomial equations

Exercise 3.9

Solve the following equations on \mathbb{C}

a. $z^2 = i$

b. $z^2 = \frac{1}{\sqrt{2}} + \frac{i}{\sqrt{2}}$

c. $z^3 + 2 - 2i = 0$

d. $z^3 + 4 - 4\sqrt{3}i = 0$

e. $z^4 = -7 + 24i$

f. $z^4 = -7 + 4\sqrt{2}i$

g. $z^8 = \sqrt{3} + i$

h. $z^7 - 2iz^4 - iz^3 - 2 = 0$

i. $z^6 + iz^3 + i - 1 = 0$