

**Exercise 11**

Solve the equation  $z^2 + z + 1 = 0$  for  $z = (x, y)$  by writing

$$(x, y)(x, y) + (x, y) + (1, 0) = (0, 0)$$

and then solving a pair of simultaneous equations in  $x$  and  $y$ .

*Suggestion:* Use the fact that no real number  $x$  satisfies the given equation to show that  $y \neq 0$ .

$$\text{Ans. } z = \left( -\frac{1}{2}, \pm \frac{\sqrt{3}}{2} \right)$$