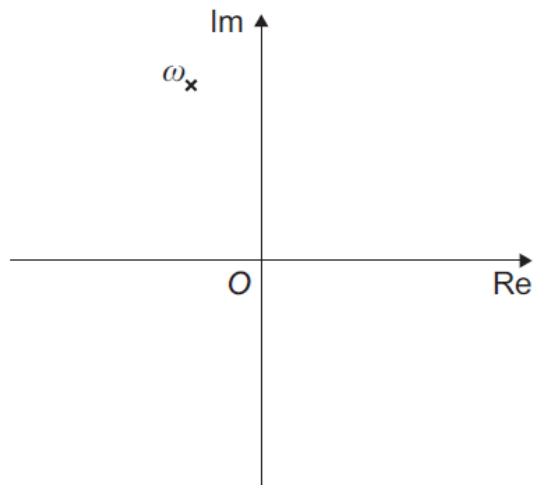


**AQA – Complex numbers – AS Further Mathematics P1**

1. June/2021/Paper\_7366/1/No.1

The complex number  $\omega$  is shown below on the Argand diagram.Which of the following complex numbers could be  $\omega$ ?Tick (✓) **one** box.**[1 mark]**

$$\cos(-2) + i \sin(-2) \quad \square$$

$$\cos(-1) + i \sin(-1) \quad \square$$

$$\cos(1) + i \sin(1) \quad \square$$

$$\cos(2) + i \sin(2) \quad \square$$

## 2. June/2021/Paper\_7366/1/No.8

Stephen is correctly told that  $(1 + i)$  and  $-1$  are two roots of the polynomial equation

$$z^3 - 2iz^2 + pz + q = 0$$

where  $p$  and  $q$  are complex numbers.

- (a) Stephen states that  $(1 - i)$  **must** also be a root of the equation because roots of polynomial equations occur in conjugate pairs.

Explain why Stephen's reasoning is wrong.

[1 mark]

- (b) Find  $p$  and  $q$

[5 marks]