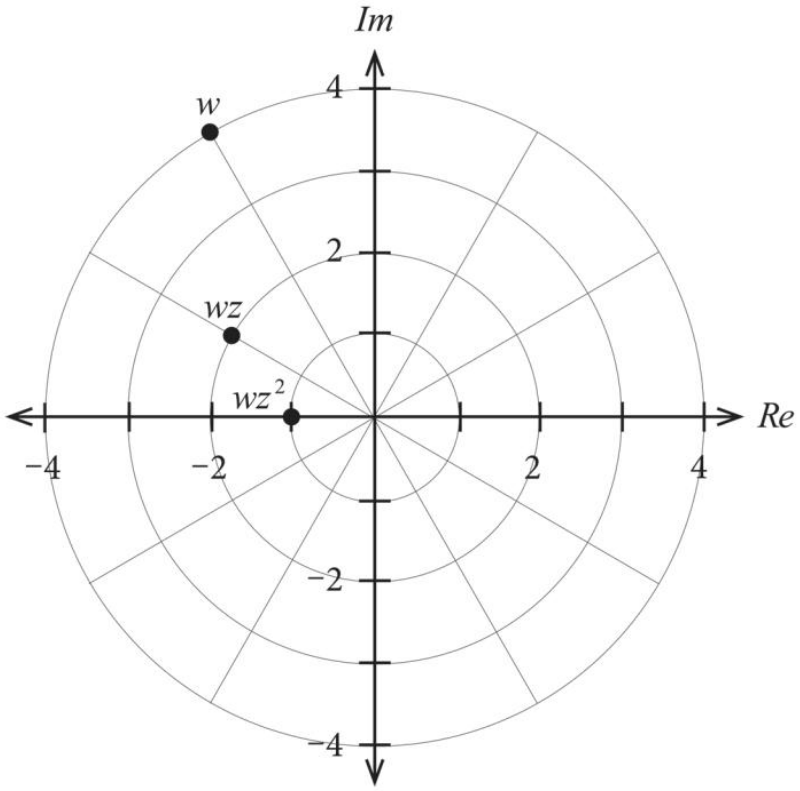
Question 10 **(7 marks)**

The complex number $w = 4cis\left(\frac{2\pi}{3}\right)$ is shown in the Argand diagram, along with the complex numbers wz and wz^2.



(a) Express wz and wz^2 in exact polar form. (2 marks)

Consider the geometric transformation(s) applied to transform $w \rightarrow wz \rightarrow wz^2$ etc.

(b) Describe the geometric transformation(s) performed by successive multiplication by z. (2 marks)

(c) Determine z in exact polar form. (1 mark)

(d) Describe the geometric transformation(s) performed by successive multiplication by z^{-1}. (2 marks)