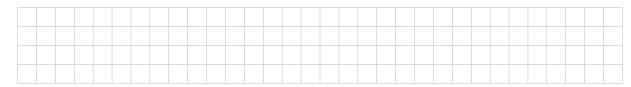
Question 2

(6 marks)

(a) (i) Write each of the following complex numbers in polar form.

(1) $z = -\sqrt{2} + \sqrt{2}i$



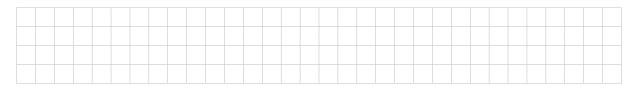
(1 mark)

(2) $w = \sqrt{6} - \sqrt{2}i$



(1 mark)

(ii) Hence find zw in polar form.



(1 mark)

(b) (i) Use de Moivre's theorem to write $(zw)^n$ in polar form, where n is a positive integer.



(1 mark)

(ii) Find the smallest positive value of n for which $(zw)^n$ is real and positive.



(2 marks)