## Question 2 (6 marks)

(a) (i) Write each of the following complex numbers in polar form.
(1) $z=-\sqrt{2}+\sqrt{2} i$

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

(ii) Hence find $z w$ in polar form.

(1 mark)
(b) (i) Use de Moivre's theorem to write $(z w)^{n}$ in polar form, where $n$ is a positive integer.

(1 mark)
(ii) Find the smallest positive value of $n$ for which $(z w)^{n}$ is real and positive.


