2.

$$z = 6 - 6\sqrt{3}\,\mathrm{i}$$

(a) (i) Determine the modulus of z

(ii) Show that the argument of z is $-\frac{\pi}{3}$

(3)

Using de Moivre's theorem, and making your method clear,

(b) determine, in simplest form, z^4

(2)

(c) Determine the values of w such that $w^2 = z$, giving your answers in the form $a + \mathrm{i}b$, where a and b are real numbers.

(3)

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Question 2 continued

(Total for Question 2 is 8 marks)

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