

FP1 Past Paper Practice : Complex numbers

1 (a) The complex number z is such that $z^2 = 3 + 4i$. Find the two possible values of z in the form $x + iy$ [4]

(b) The complex number w is $1 - 3i$

(i) Find the modulus and argument of w , giving the argument in radians to 4 significant figures. [2]

(ii) In an argand diagram, the points P and Q represent w and w^* respectively. Find the equation of the circle which passes through the origin, P and Q in the form $|z - a| = b$, where a and b are real numbers. [4]

2. (a) Given that $z = 1 + i$ is a root of the equation

$$z^3 - 2z + 4 = 0$$

find the other two roots. [4]

(b) Solve the equation

$$iz^2 + z + 2i = 0$$

simplifying your answers [3]