# COMPLEX NUMBERS (Q 4, PAPER 1)

## LESSON NO. 7: EQUATIONS II

**2006**

4 (b) (i) Solve $z^2 - 4z + 29 = 0$.

Write your answers in the form $x + yi$ where $x, y \in \mathbf{R}$.

**2004**

4 (b) (ii) Solve $z^2 - 10z + 26 = 0$.

Write your answers in the form $a + bi$, where $a, b \in \mathbf{R}$.

**2002**

4 (c) $p$ and $k$ are real numbers such that $p(2 + i) + 8 - ki = 5k - 3 - i$.

(i) Find the value of $p$ and the value of $k$.

(ii) Investigate if $p + ki$ is a root of the equation $z^2 - 4z + 13 = 0$.

**1998**

4 (b) (i) Verify that $4 - 3i$ is a root of

$$z^2 - 8z + 25 = 0$$

and write down the other root.

**1996**

4 (c) Let $z = 2 - i$ be one root of the equation $z^2 + pz + q = 0$, $p, q \in \mathbf{R}$.
Find the value of $p$ and the value of $q$.

**ANSWERS**

**2006** 4 (b) (i) $z = 2 \pm 5i$

**2004** 4 (b) (ii) $z = 5 \pm i$

**2002** 4 (c) (i) $p = 2, k = 3$         (ii) Yes

**1998** 4 (b) (i) $4 + 3i$

**1996** 4 (c) $p = -4, q = 5$