

**ALGEBRA (Q 2 & 3, PAPER 1)**

**LESSON NO. 4: CUBIC EQUATIONS**

**2007**

3 (c) Let  $f(x) = 2x^3 + 11x^2 + 4x - 5$ .

(i) Verify that  $f(-1) = 0$ .

(ii) Solve the equation

$$2x^3 + 11x^2 + 4x - 5 = 0.$$

**2005**

3 (c) Let  $f(x) = 2x^3 - 3x^2 - 11x + 6$ .

(i) Verify that  $f(3) = 0$ .

(ii) Solve the equation

$$2x^3 - 3x^2 - 11x + 6 = 0.$$

**2004**

2 (b) (ii) Show that  $x - 2$  is a factor of  $x^3 - 3x^2 - x + 6$ .

**2003**

3 (b) (i) Show that  $x + 2$  is a factor of  $x^3 + 3x^2 - 4x - 12$ .

(ii) Hence, or otherwise, solve the equation  $x^3 + 3x^2 - 4x - 12 = 0$ .

**2002**

2 (b) (i) Show that  $x + 2$  is a factor of  $2x^3 + 7x^2 + x - 10$ .

(ii) Hence, or otherwise, find the three roots of  $2x^3 + 7x^2 + x - 10 = 0$ .

**2000**

3 (b) (i) Show that  $x = 2$  is a root of  $3x^3 + 8x^2 - 33x + 10 = 0$ .

(ii) Find the other roots of  $3x^3 + 8x^2 - 33x + 10 = 0$ .

**1999**

3 (c) Show that  $6x^2 + 5x - 4$  is a factor of  $6x^3 + 17x^2 + 6x - 8$ .

Hence, or otherwise, find the roots of  $6x^3 + 17x^2 + 6x - 8 = 0$ .

**1998**

3 (b) (i) If  $(x - 2)$  is a factor of  $3x^3 + x^2 + kx + 6$ , find the value of  $k$ .

(ii) Write down an equation which has three roots of value  $-3, 1$  and  $5$ .

**1997**

3 (b) Solve the equation

$$2x^3 + 3x^2 - 5x - 6 = 0.$$

**1996**

3 (b) Find the roots of the equation

$$2x^3 - 5x^2 + x + 2 = 0.$$

**ANSWERS**

**2007** 3 (c) (ii)  $x = -5, -1, \frac{1}{2}$

**2005** 3 (c)  $x = -2, \frac{1}{2}, 3$

**2003** 3 (b) (ii)  $x = -3, -2, 2$

**2002** 2 (b) (ii)  $x = -2, -\frac{5}{2}, 1$

**2000** 3 (b) (ii)  $x = -5, \frac{1}{3}$

**1999** 3 (c)  $(-\frac{4}{3}, \frac{1}{2}, -2)$

**1998** 3 (b) (i)  $-17$  (ii)  $x^3 - 3x^2 - 13x + 15 = 0$

**1997** 3 (b)  $x = -2, -1, \frac{3}{2}$

**1996** 3 (b)  $x = -\frac{1}{2}, 1, 2$