

## Simultaneous Equations [Ch. 3 & 4]

1 Solve the simultaneous equations

$$y = 2x^2 - 3x + 4, \quad y = 4x + 1. \quad [4]$$

2 Solve the simultaneous equations

$$x + y = 2, \quad x^2 + 2y^2 = 11. \quad [6]$$

3 Solve the simultaneous equations

$$x^2 + 5x + y = 4, \quad x + y = 8. \quad [5]$$

4 Solve the simultaneous equations

$$x^2 + y^2 = 25, \quad 2x + y - 5 = 0. \quad [5]$$

5 It is given that  $x$  and  $y$  satisfy the simultaneous equations

$$y - x = 4, \quad 2x^2 + xy + y^2 = 8.$$

(i) Show that  $x^2 + 3x + 2 = 0$ . [3]

(ii) Solve the simultaneous equations. [3]

6 (i) Solve the simultaneous equations

$$y = 2x + 2, \quad y = x^2 + 3x - 18. \quad [4]$$

(ii) Show that the simultaneous equations

$$y = 2x - 20, \quad y = x^2 + 3x - 18$$

have no real solutions. [3]

(iii) The graph of  $y = 2x + k$  meets the graph of  $y = x^2 + 3x - 18$  at only one point. Find the value of the constant  $k$ . [3]