

**Dr Oliver Mathematics**  
**Mathematics**  
**Simultaneous Equations**  
**Past Examination Questions**

This booklet consists of 10 questions across a variety of examination topics. The total number of marks available is 62.

1. Solve the simultaneous equations (6)

$$\begin{aligned}x + y &= 2 \\x^2 + 2y &= 12.\end{aligned}$$

2. Solve the simultaneous equations (6)

$$\begin{aligned}x - 2y &= 1 \\x^2 + y^2 &= 29.\end{aligned}$$

3. Solve the simultaneous equations (7)

$$\begin{aligned}y &= x - 2 \\y^2 + x^2 &= 10.\end{aligned}$$

4. Solve the simultaneous equations (5)

$$\begin{aligned}y &= x - 4 \\2x^2 - xy &= 8,\end{aligned}$$

giving your answers in the form  $a \pm b\sqrt{3}$ , where  $a$  and  $b$  are integers.

5. Solve the simultaneous equations (7)

$$\begin{aligned}y - 3x + 2 &= 0 \\y^2 - x - 6x^2 &= 0.\end{aligned}$$

6. Solve the simultaneous equations (7)

$$\begin{aligned}x + y &= 2 \\4y^2 - x^2 &= 11.\end{aligned}$$

7. Solve the simultaneous equations (5)

$$\begin{aligned}2x + y &= 1 \\ x^2 - \frac{1}{4}y + \frac{5}{16} &= 0.\end{aligned}$$

8. Solve the simultaneous equations (6)

$$\begin{aligned}y &= x + 2 \\ x^2 + 4y^2 - 2x &= 35.\end{aligned}$$

9. Solve the simultaneous equations (7)

$$\begin{aligned}y - 2x - 4 &= 0 \\ 4x^2 + y^2 + 20x &= 0.\end{aligned}$$

10. Solve the simultaneous equations (6)

$$\begin{aligned}y + 4x + 1 &= 0 \\ y^2 + 5x^2 + 2x &= 0.\end{aligned}$$

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