SIMULTANEOUS EQUATIONS [NON-LINEAR]
EXAM PRACTICE

Ref: G947. **7R4**

A1 Solve $y = x^2$ $y = 11x - 10$	**A2** Solve $y = x^2$ $y + 3x = 4$	**A3** Solve $y = 3x^2$ $y = 5x + 8$	**A4** Solve $y + 7x = 15$ $y = 2x^2$
B1 Solve $x^2 + y^2 = 29$ $y = 3x + 1$	**B2** Solve $x^2 + y^2 = 41$ $y = 2x - 3$	**B3** Solve $x^2 + y^2 = 17$ $y + 2x = 7$	**B4** Solve $3x = 4 - y$ $x^2 + y^2 = 8$
C1 Solve $y = (x + 1)^2$ $y = 5x - 1$	**C2** Solve $y = x^2 + 7x + 3$ $y = 9x + 2$	**C3** Solve $x + y = 11$ $xy = 30$	**C4** Solve $xy = 6$ $2x + y = 7$
D1 Solve $3x - y = 4$ $x^2 + y^2 = 34$	**D2** Solve $x^2 - y^2 = 8$ $3x = y + 8$	**D3** Solve $2x^2 - xy = 12$ $x = 4 + y$	**D4** Solve $3y^2 + 2x^2 = 21$ $y - 2x = -7$

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SIMULTANEOUS EQUATIONS [NON-LINEAR]
EXAM PRACTICE

7R4

A1 Solve

$$y = x^2$$
$$y = 11x - 10$$

$$x^2 = 11x - 10$$

$(1,1)$ and $(10,100)$

A2 Solve

$$y = x^2$$
$$y + 3x = 4 \longrightarrow y = 4 - 3x$$

$$x^2 = 4 - 3x$$

$(1,1)$ and $(-4,16)$

A3 Solve

$$y = 3x^2$$
$$y = 5x + 8$$

$$3x^2 = 5x + 8$$

$(-1,3)$ and $(2.\dot{6}, 21.\dot{3})$

A4 Solve

$$y + 7x = 15 \longrightarrow y = 15 - 7x$$
$$y = 2x^2$$

$$2x^2 = 15 - 7x$$

$(-5,50)$ and $(1.5, 4.5)$

B1 Solve

$$x^2 + y^2 = 29$$
$$y = 3x + 1$$

$$x^2 + (3x + 1)^2 = 29$$

$(-2,-5)$ and $(1.4, 5.2)$

B2 Solve

$$x^2 + y^2 = 41$$
$$y = 2x - 3$$

$$x^2 + (2x - 3)^2 = 41$$

$(4,5)$ and $(-1.6, -6.2)$

B3 Solve

$$x^2 + y^2 = 17$$
$$y + 2x = 7 \longrightarrow y = 7 - 2x$$

$$x^2 + (7 - 2x)^2 = 17$$

$(4,-1)$ and $(1.6, 3.8)$

B4 Solve

$$3x = 4 - y \longrightarrow y = 4 - 3x$$
$$x^2 + y^2 = 8$$

$$x^2 + (4 - 3x)^2 = 17$$

$(2,-2)$ and $(0.4, 2.8)$

C1 Solve

$$y = (x + 1)^2$$
$$y = 5x - 1$$

$$(x + 1)^2 = 5x - 1$$

$(1,4)$ and $(2,9)$

C2 Solve

$$y = x^2 + 7x + 3$$
$$y = 9x + 2$$

$$x^2 + 7x + 3 = 9x + 2$$

$(1,11)$

C3 Solve

$$x + y = 11 \longrightarrow y = 11 - x$$
$$xy = 30$$

$$x(11 - x) = 30$$

$(5,6)$ and $(6,5)$

C4 Solve

$$xy = 6$$
$$2x + y = 7 \longrightarrow y = 7 - 2x$$

$$x(7 - 2x) = 6$$

$(2,3)$ and $(1.5, 4)$

D1 Solve

$$3x - y = 4 \longrightarrow y = 3x - 4$$
$$x^2 + y^2 = 34$$

$$x^2 + (3x - 4)^2 = 34$$

$(3,5)$ and $(-0.6, -5.8)$

D2 Solve

$$x^2 - y^2 = 8$$
$$3x = y + 8 \longrightarrow y = 3x - 8$$

$$x^2 - (3x - 8)^2 = 8$$

$(3,1)$

D3 Solve

$$2x^2 - xy = 12$$
$$x = 4 + y \longrightarrow y = x - 4$$

$$2x^2 - x(x - 4)^2 = 12$$

$(-6,-10)$ and $(2,-2)$

D4 Solve

$$3y^2 + 2x^2 = 21$$
$$y - 2x = -7 \longrightarrow y = 2x - 7$$

$$3(2x - 7)^2 + 2x^2 = 21$$

$(3,-1)$