Simultaneous Equations

1 Use the substitution method to solve the following pairs of simultaneous equations.

a) $2x + y = 8$
$y = 4x - 10$

b) $y = 4 - 2x$
$5x + 2y = 9$

c) $x = 8 - 2y$
$2x + 3y = 13$

d) $2x + 3y = 17$
$y = 8 - 3x$

e) $x = 9 - 2y$
$2x - 4y = 2$

f) $y = 3x + 13$
$2x - 3y = -25$

g) $x = 1 - 2y$
$3x + y = 13$

h) $y = 2x - 1$
$2x + y = 9$

2 Solve the following pairs of equations by adding to eliminate a variable

a) $x + y = 4$
$3x - y = 8$

b) $4a - 4b = 6$
$5a + 4b = 12$

c) $5x + 3y = -7$
$-5x + 5y = -25$

d) $3x - 2y = -5$
$-3x + 3y = 12$

3 Solve the following pairs of equations by subtracting to eliminate a variable

a) $3x + 2y = 14$
$2x + 2y = 10$

b) $5x - 3y = 12$
$2x - 3y = 3$

c) $3x + 5y = 22$
$3x - 2y = 8$

d) $7a + b = -1$
$7a - 3b = 31$

4 Solve the simultaneous equations by elimination

a) $3y + 5x = 38$
$y - 5x = -14$

b) $3x + 4y = -1$
$3x - 2y = -10$

c) $7x - 4y = -2$
$3x - 4y = 6$

d) $3a - 2b = 7$
$5a + 2b = 1$

Answers

1 a) $x = 3$ $y = 2$

b) $x = 1$ $y = 2$

c) $x = 2$ $y = 3$

d) $x = 1$ $y = 5$

e) $x = 5$ $y = 2$

f) $x = -2$ $y = 7$

g) $x = 5$ $y = -2$

h) $x = 2.5$ $y = 4$

2 a) $x = 3$ $y = 1$

b) $a = 2$ $b = 0.5$

c) $x = 1$ $y = -4$

d) $x = 3$ $y = 7$