SIMULTANEOUS EQUATIONS (Advanced)

1) Solve the following pairs of simultaneous equations.

a) $2x + 3y = 7$
$3x + 2y = 8$

b) $4x + 3y = 11$
$2x + 5y = 9$

c) $3x + 5y = 19$
$4x + 2y = 16$

d) $3x + 2y = 14$
$5x - 2y = 18$

e) $4x + 3y = 26$
$5x - 2y = 21$

f) $4x + 3y = 25$
$3x - 2y = 6$

g) $4x + 3y = 9$
$x - 2y = 5$

h) $6x - 5y = 22$
$2x - 3y = 10$

i) $3x - 2y = 19$
$2x - 5y = 31$

2) Solve the following pairs of simultaneous equations. **Think carefully!**

a) $x + y = 6$
$y - x = 2$

b) $x + 2y = 11$
$y - 2x = 3$

c) $3x + 5y = 18$
$y - 2x = 1$

d) $3y - x = 15$
$2x + y = -2$

e) $4y - 2x = 22$
$3x + 2y = 7$

f) $5x - 3y = 19$
$2y + 5x = 4$

g) $3x - 2y = 4$
$3y - x = 1$

h) $5x - 2y = 2$
$2y - 3x = 2$

i) $3x - 2y = 4$
$-3y + 5x = 8$

3) Even harder!

a) $2x + y + 1 = 0$
$3x + 2y + 4 = 0$

b) $3x - y + 5 = 0$
$5x + y - 13 = 0$

c) $8x - 5y + 1 = 0$
$2x + y - 11 = 0$

d) $9x - 2y - 1 = 0$
$3x - 4y + 13 = 0$

e) $2x - 3y - 23 = 0$
$x + 3y - 7 = 0$

f) $3x + 5y - 8 = 0$
$4x + y - 22 = 0$

g) $2y - x - 12 = 0$
$x + 3y - 13 = 0$

h) $3y + 2x + 13 = 0$
$5x - 4y - 2 = 0$

i) $3y - 3x + 9 = 0$
$2y - x + 6 = 0$

ANSWERS.

1) a) $x = 2$, $y = 1$.
   b) $x = 2$, $y = 1$.
   c) $x = 3$, $y = 2$.
   d) $x = 4$, $y = 1$.
   e) $x = 5$, $y = 2$.
   f) $x = 4$, $y = 3$.
   g) $x = 3$, $y = -1$.
   h) $x = 2$, $y = -2$.
   i) $x = 3$, $y = -5$.

2) a) $x = 2$, $y = 4$.
   b) $x = 1$, $y = 5$.
   c) $x = 1$, $y = 3$.
   d) $x = -3$, $y = 4$.
   e) $x = -1$, $y = 5$.
   f) $x = 2$, $y = -3$.
   g) $x = 2$, $y = 1$.
   h) $x = 2$, $y = 4$.
   i) $x = 4$, $y = 4$.

3) a) $x = 2$, $y = -5$.
   b) $x = 1$, $y = 8$.
   c) $x = 3$, $y = 5$.
   d) $x = 1$, $y = 4$.
   e) $x = 10$, $y = -1$.
   f) $x = 6$, $y = -2$.
   g) $x = -2$, $y = 5$.
   h) $x = -2$, $y = -3$.
   i) $x = 0$, $y = -3$.