CHALLENGER

[06-12-08-NEM2-8]

1. Solve the following simultaneous equations.

(a) $12x + 6y - 7 = 0$
$3x - 4y + 1 = 0$

(b) $\frac{12}{x} + \frac{6}{y} - 7 = 0$
$\frac{3}{x} - \frac{4}{y} + 1 = 0$

2. Solve the following simultaneous equations.

$$\frac{12}{x+y} + \frac{6}{x-y} - 7 = 0$$
$$\frac{3}{x+y} - \frac{4}{x-y} + 1 = 0$$

3. If $x = -1$ and $y = 2$ are the solutions of the simultaneous equations:

$$ax - by = -7$$
$$2x + by = 4a$$

find the values of a and b.

4. Solve the following simultaneous equations.

$$\frac{3}{xy} + \frac{2}{x+y} = \frac{14}{15}$$
$$\frac{1}{xy} - \frac{1}{x+y} = \frac{1}{30}$$

5. If $a \neq b \neq c$ such that

$$a + b = b$$
$$bc = b$$
$$c - b = b$$

find the values of a, b and c.

6. Solve the following simultaneous equations.

$$(2x + 3)^2 - 4y = 85$$
$$(x - 1)^2 - y = 5$$