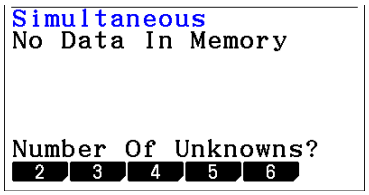
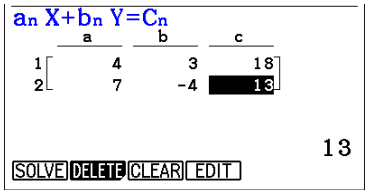
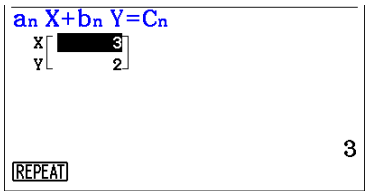
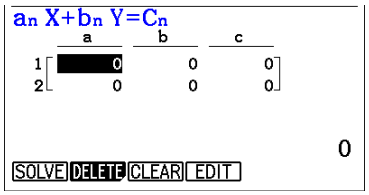
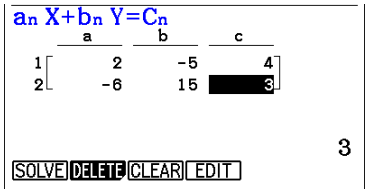
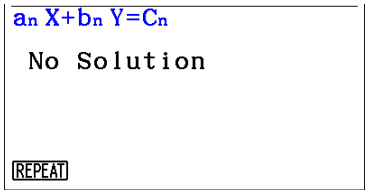
Chapter 3 / **Investigation 16**

Solving systems of linear equations

Investigation 16 is to be done without using a calculator, but all the results of solving systems of linear equations can be checked on one.

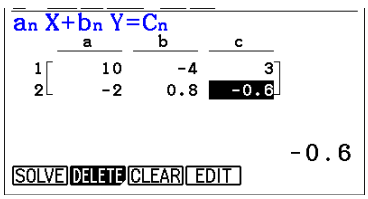
Solve the following simultaneous equations.

a $\begin{cases} 4x+3y=18 \\ 7x-4y=13 \end{cases}$ **b** $\begin{cases} 2x-5y=4 \\ -6x+15y=3 \end{cases}$ **c** $\begin{cases} 10x-4y=3 \\ -2x+\frac{4}{5}y=-\frac{3}{5} \end{cases}$

Press MENU A to enter equation mode. Press F1 Simultaneous. There are 2 unknowns so press F1 2.	
Enter to coefficients 4, 3, 18 and 7, –4, 13 into the matrix.	
Press F1 SOLVE. The calculator displays the solution $x = 3$ and $y = 2$	
Press F1 REPEAT. Press F3 CLEAR.	
Enter to coefficients 2, –5, 4 and –6, 15, 3 into the matrix.	
Press F1 SOLVE. The calculator displays 'No Solution'.	

Chapter 3 / **Investigation 16**

Solving systems of linear equations

Press F1 REPEAT. Press F3 CLEAR. Enter to coefficients 10, −4, 3 and −2, $4 \div 5$, $-3 \div 5$ into the matrix.	
Press F1 SOLVE. The solution is shown as $x = \frac{3}{10} + \frac{2}{5}y$. There are infinitely many solutions as the lines coincide.