



Exemplar 13 : Solving Simultaneous Linear Equations Graphically

Objective: To solve simultaneous linear equations by using a graphing software

Key Stage: 3

Learning Unit: Linear Equations in Two Unknowns

Material Required: Graphing software - *Graphmatica*

Prerequisite Knowledge:

- (1) The graphical method in solving simultaneous linear equations
- (2) Rounding off numbers to the required number of decimal places

Description of the Activity:

1. The teacher gives a brief revision on the graphical method of solving simultaneous linear equations in two unknowns.
2. The teacher demonstrates how to use *Graphmatica* by using the example in Part I of the worksheet :

$$\text{Solve } \begin{cases} x - 2y = 1 \\ 2x + 3y = 12 \end{cases} \text{ graphically.}$$

The students follow the steps given by the teacher during the demonstration as a practice. The teacher should point out that *Graphmatica* does not provide accurate solutions but only provides ways to find the solutions up to a certain degree of accuracy.

3. After drawing the graphs of $x - 2y = 1$ and $2x + 3y = 12$ as shown in Figure 1 on the worksheet, the teacher asks students to answer Question 2. Students may come up with different answers. The teacher asks students to express their views. The teacher demonstrates how to use the **Zoom in** function of *Graphmatica* at a suitable level of accuracy to find the solutions in Questions 3 to 6. The figure below is a “zoom in” illustration to magnify the graph. The procedure for **Zoom in** is listed in the Operation Procedure at the end of this exemplar.