

RE-EQUATIONS

Aims:

This activity arose from a very industrious year 9 class who began to experiment with algebraic manipulation whilst solving linear equations.

The aims of this activity are two-fold. First to reinforce the algebraic manipulation required in solving linear equations. Second, to emphasise the freedom inherent when choosing which terms to '*move*' and '*remove*'; that there is no single '*correct*' method.

- 1) Solve the following equation in front of the class: $4x - 5 = 25 - 2x$.

$$\begin{aligned}4x - 5 &= 25 - 2x \\6x - 5 &= 25 \\6x &= 30 \\x &= 5.\end{aligned}$$

Now repeat the question, but invite the class to nominate which term to move. Choices are: $4x$, -5 , 25 , $-2x$, ~~$4x$~~ , ~~$2x$~~ {these last two depend upon the ability of the class}.

Example:

$$\begin{aligned}4x - 5 &= 25 - 2x \\ \text{\{Move the } 4x\}} & \quad -5 = 25 - 6x \\ \text{\{Move the } 25\}} & \quad -30 = -6x \\ \text{\{Move the } -6\}} & \quad \frac{-30}{-6} = x \\ & \quad 5 = x.\end{aligned}$$

- 2) Now repeat for $2x - 7 = 25 - 2x$ to get the solution $x = 8$.

This time the students are to move terms nominated by the teacher to eventually (if no mistakes are made!) end up with the same solution as before.

- 3) Repeat for $6x - 10 = 14 - 2x$.