Linear Equations and Formula

Numbers

Essential Understanding
• Algebra is the language upon which the world can be MODELLED mathematically.

Essential Questions
• What is an equation?
• What is a formula?
• What does it mean if an equation is modelled after a process or Experiment?

Key Points (Learning Outcomes)
• Solve linear equation in one unknown with/without brackets
• Solve simple fractional equations
• Form linear equations to solve real life situations.

Difficult Point
• Understanding the difference between expression and equation Critical Point
• Identifying operations permitted on keeping equations balanced

Definitions
1. An equation is a statement that has two expressions that are equal. Example: $x-3=1$, $5y+3=3y+11$
2. In an equation, the unknown is referred to as the variable. Example: In the equation $4x - 18 = 2 - x$, x is the variable.
3. When we solve equations, we find the value/ solution/ root of the unknown/ variable in the equation.
Example: When we solve $x - 3 = 1$, we find $x = 4$.
4. Equivalent equations are equations that give the same solution.
Example: $x-3=1$ and $5x-18=2$ are equivalent equations as $x=4$ is the solution to both equations.
5. A linear equation is an equation in which the highest power of the variable/unknown is 1.
Example: $5x - 18 = 2$ is a linear equation.

Solving Linear Equations II Key Points (Learning Outcomes)
• Solve linear equation in one unknown with/without brackets Difficult Point
• Applying distributive and associative laws correctly Critical Point
• Identifying operations permitted on keeping equations balanced
7.3.1 Equations involving Brackets
1. Remove all brackets by expansion.

2. Solve the equation by having the all unknowns on the Left Hand Side of the equation (LHS) and the values on the Right Hand Side (RHS) of the equation.

Key Points (Learning Outcomes)
• Solve simple fractional equations Difficult Point
• Applying distributive and associative laws correctly
Critical Point
• Identifying operations permitted on keeping equations balanced

7.4.1 Simple Fractional Equations
Steps
1. Remove denominators of fractions by multiplying all terms by the LCM
2. Solve the equation by having the all unknowns on the LHS and the values on the RHS.