1.8 Systems of linear equations and polynomial equations

1.8.1 Solve a linear system
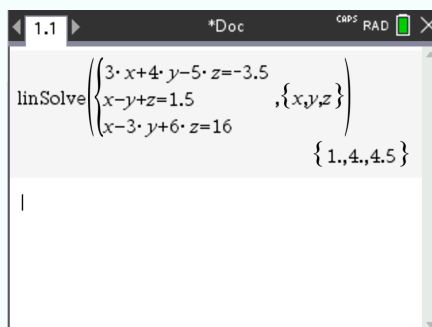
Suppose you have the following system to solve:

$$\begin{cases} 3x + 4y - 5z = -3.5 \\ x - y + z = 1.5 \\ x - 3y + 6z = 16 \end{cases}$$

> ⚠ All the equations must be in the form $a \cdot x + b \cdot y + c \cdot z = d$

① Press 〔menu〕, select Algebra > Solve System of Equations > Solve System of Linear Equation.
Enter 3 as the number of equations and fill it as follows:

② Fill the equations as follows:

We have 3 equations and 3 unknowns (x, y and z)

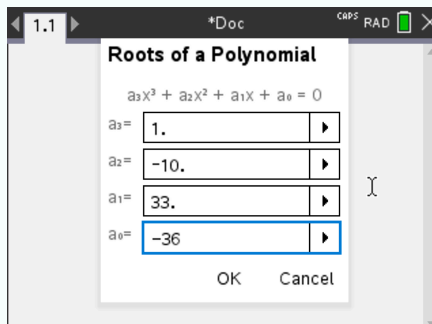Press 〔enter〕. The results should be $x = 1, y = 4$ and $z = 4.5$.

1.8.2 Solve a polynomial equation

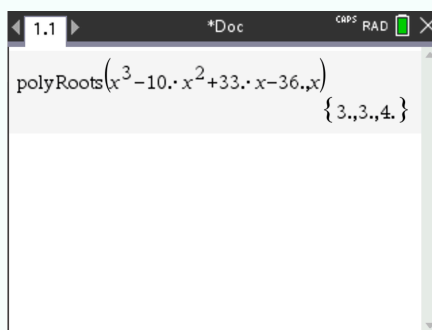Suppose you have to solve the equation $x^3 - 10x^2 + 33x - 36 = 0$.

> ⚠ The right hand side must be 0

① Press [menu] , select Algebra > Polynomial Tools > Find Roots of Polynomial. Set 3 as the order of the equation. Fill the equation as follows:

The order is the biggest power of x

in the equation

Press [enter] . The results should be 3 and 4:

3 appears twice because $x^3 - 10x^2 + 33x - 36 = (x - 3) \cdot (x - 3) \cdot (x - 4)$.

21