Topic/Skill	Definition/Tips	Example
1. Iteration	The act of **repeating a process** over and over again, often with the aim of **approximating** a desired result more closely. **Recursive** Notation: $x_{n+1} = \sqrt{3x_n + 6}$	$$x_1 = 4$$ $$x_2 = \sqrt{3 \times 4 + 6} = 4.242640\ldots$$ $$x_3 = \sqrt{3 \times 4.242640\ldots + 6}$$ $$= 4.357576\ldots$$
2. Iterative Method	To create an iterative formula, **rearrange** an equation with more than one x term to **make one of the x terms the subject**. You will be given the first value to substitute in, often called x_1. **Keep substituting in your previous answer** until your answers are the same to a certain degree of accuracy. This is called converging to a limit. Use the 'ANS' button on your calculator to keep substituting in the previous answer.	Use an iterative formula to find the positive root of $x^2 - 3x - 6 = 0$ to 3 decimal places. $x_1 = 4$ Answer: $$x^2 = 3x + 6$$ $$x = \sqrt{3x + 6}$$ So $x_{n+1} = \sqrt{3x_n + 6}$ $$x_1 = 4$$ $$x_2 = \sqrt{3 \times 4 + 6} = 4.242640\ldots$$ $$x_3 = \sqrt{3 \times 4.242640\ldots + 6}$$ $$= 4.357576\ldots$$ Keep repeating… $$x_7 = 4.372068.. = 4.372\ (3dp)$$ $$x_8 = 4.372208\ldots = 4.372\ (3dp)$$ So answer is $x = 4.372\ (3dp)$