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| **Topic/Skill** | **Definition/Tips**  **Topic: Iteration** | **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: |  |
| 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 .  **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 to 3 decimal places.    Answer:  So  Keep repeating…  So answer is |
| 3. Solving Simultaneous Equations  (Graphically) | **Draw the graphs** of the two equations.  The **solutions** will be **where the lines meet**.  The solution can be written as a **coordinate**. | and  They meet at the point with coordinates (2,3) so the answer is and |
| 4. Solving Linear and Quadratic Simultaneous Equations | Method 1: If both equations are in the same form (eg. Both …):  1. Set the equations **equal to each other**.  2. **Rearrange** to make the equation **equal to zero**.  3. **Solve** the quadratic equation.  4. **Substitute** the values back in to one of the equations.  Method 2: If the equations are not in the same form:  1.  **Rearrange** the linear equation into the form or  2. **Substitute** in to the quadratic equation.  3. **Rearrange** to make the equation **equal to zero**.  4. **Solve** the quadratic equation.  5. **Substitute** the values back in to one of the equations.  You should get **two pairs of solutions** (two values for , two values for .)  Graphically, you should have **two points of intersection**. | Example 1  Solve  and  and  and    Answers: (4,3) and (-1,-2)  Example 2  Solve and  and  and  Answers: (2,1) and (1,2) |
| 5. Quadratic Graph | A ‘**U-shaped**’ curve called a **parabola**.  The equation is of the form  , where , and are numbers, .  If **,** the parabola is **upside down**. | Image result for quadratic graph definition math |
| 6. Roots of a Quadratic | A root is a **solution**.  The roots of a quadratic are the **-intercepts of the quadratic graph**. | Image result |
| 7. Turning Point of a Quadratic | A turning point is the **point where a quadratic turns**.  On a **positive parabola**, the turning point is called a **minimum**.  On a **negative parabola**, the turning point is called a **maximum**. | Minimum turning pointMaximum turning point |
| 8. Cubic Graph | The equation is of the form , where  **is an number**.  If , the curve is **increasing**.  If , the curve is **decreasing**. | Image result for cubic function definition mathImage result for cubic function definition math |

**Subject: Maths**

**Knowledge Organiser**