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| **Topic/Skill**  | **Definition/Tips** | **Example****Topic: Sequences**  |
| 1. Linear Sequence | A number pattern with a **common difference**. | 2, 5, 8, 11… is a linear sequence |
| 2. Term | **Each value** in a sequence is called a term. | In the sequence 2, 5, 8, 11…, 8 is the third term of the sequence. |
| 3. Term-to-term rule | A rule which allows you to **find the next term** in a sequence if you **know the previous term**. | First term is 2. Term-to-term rule is ‘add 3’Sequence is: 2, 5, 8, 11… |
| 4. nth term | A rule which allows you to **calculate the term** that is in the **nth position** of the sequence.Also known as the ‘position-to-term’ rule.**n** refers to the **position** of a term in a sequence. | nth term is $3n-1$The 100th term is $3×100-1=299$ |
| 5. Finding the nth term of a linear sequence | 1. Find the **difference**.2. **Multiply that by** $n.$3. Substitute $n=1$ to **find out what number you need to add or subtract to get the first number in the sequence**. | Find the nth term of: 3, 7, 11, 15…1. Difference is +42. Start with $4n$3. $4×1=4$, so we need to subtract 1 to get 3.nth term = $4n-1$ |
| 6. Fibonacci type sequences | A sequence where the next number is found by **adding up the previous two terms**  | The Fibonacci sequence is:$$1,1,2,3,5,8,13,21,34…$$An example of a Fibonacci-type sequence is:$$4, 7, 11, 18, 29…$$ |
| 7. Geometric Sequence | A sequence of numbers where each term is found by **multiplying the previous one** by a number called the **common ratio, r**. | An example of a geometric sequence is:$$2, 10, 50, 250…$$The common ratio is 5Another example of a geometric sequence is:$$81, -27, 9,-3, 1… $$The common ratio is $-\frac{1}{3}$ |
| 11. Triangular numbers | The sequence which comes from a pattern of dots that form a triangle.$$1, 3, 6, 10, 15, 21…$$ |  |

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| **Topic/Skill**  | **Definition/Tips** | **Example****Topic: Coordinates and Linear Graphs**  |
| 1. Coordinates | Written in **pairs**. The **first** term is the **x-coordinate** (movement **across**). The **second** term is the **y-coordinate** (movement **up or down**) | A: (4,7)B: (-6,-3) |
| 2. Midpoint of a Line | Method 1: **add the x coordinates and divide by 2**, **add the y coordinates and divide by 2**Method 2: Sketch the line and find the values half way between the two x and two y values.  | Find the midpoint between (2,1) and (6,9)$\frac{2+6}{2}=4$ and $\frac{1+9}{2}=5$So, the midpoint is (4,5) |
| 3. Linear Graph | **Straight line** graph.The general equation of a linear graph is$$y=mx+c$$where $m$ **is the gradient** and $c$ **is the y-intercept**.The **equation** of a linear graph can contain an **x-term**, a **y-term** and a **number**. | Example:Image result for linear graphOther examples:$x=y$ $y=4$ $x=-2$ $y=2x-7$ $y+x=10$ $2y-4x=12$  |
| 4. Plotting Linear Graphs | Method 1: **Table of Values**Construct a table of values to calculate coordinates.Method 2: **Gradient-Intercept Method** (use when the equation is in the form $y=mx+c$)1. Plots the y-intercept2. Using the gradient, plot a second point.3. Draw a line through the two points plotted.Method 3: **Cover-Up Method** (use when the equation is in the form $ax+by=c$)1. Cover the $x$ term and solve the resulting equation. Plot this on the $x-axis.$2. Cover the $y$ term and solve the resulting equation. Plot this on the $y-axis.$3. Draw a line through the two points plotted. | Image result for gradient intercept methodImage result for cover up method straight line graphs |

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