### Task 1 – Checking you know how to plot a graph

1. Plot the graph of *y* = *x* + 1
2. Plot the graphs of the following functions on the same set of axes:

|  |  |
| --- | --- |
| 1. *y* = 2*x* + 1
 | 1. *y* = 3*x* + 2
 |
| 1. *y* = 4*x* + 3
 | 1. *y* = 1/2*x* – 1
 |

### Task 2 – Pattern 1

1. Plot the graphs of the following four functions on the same set of axes.

|  |  |
| --- | --- |
| 1. *y* = 2*x*
 | 1. *y* = 2*x* + 3
 |
| 1. *y* = 2*x* + 1
 | 1. *y* = 2*x* – 1
 |

1. Write down what you notice about the result.
2. Look at the functions for each line. Suggest a reason for your observation in (b).
3. Write down four different functions which follow a similar pattern to that which you suggested in (c).
4. Plot the graphs to check your answers.

### Task 3 – Pattern 2

1. Plot the graph of *y* = 2*x* + 1
2. Plot the graph of *y* = -2*x* + 1. Check by plotting.
3. Describe the slope of the following graphs

|  |  |
| --- | --- |
| 1. *y* = -3*x* + 1
 | 1. *y* = 5*x* – 3
 |
| 1. *y* = 3 – 5*x*
 | 1. *y* = 1 – *x*
 |

### Task 4 – Pattern 3

1. Plot the following graphs and write down the point at which each line crosses the *y*-axis:

|  |  |
| --- | --- |
| 1. *y* = 3*x* + 1
 | 1. *y* = 2*x* – 2
 |
| 1. *y* = *x* + 2
 | 1. *y* = 2*x*
 |

1. Can you see a connection between the function and the point where each line crosses the *y*-axis?

### Task 5

Plot the graph of *y* = 4*x* + 2 without creating a table of values. Explain your strategy.



