1. Write down the equations of four lines which, when drawn on the same set of axes, will form a square.
2. Write down the equations of four lines which will form any *other* rectangle.
3. What is the equation of a line that has gradient  and y-intercept 4?
4. Plot a graph of a line with gradient  and y-intercept .
5. Plot the graph of *y* = *x* + 1.

Use your graph to complete the following table of values:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| x | -7 | -4 | -2 | 0 | 1 | 3 | 4 |
| y |  |  |  |  |  |  |  |

1. Any graph of the form *y* = ***a****x* + ***b*** will form a straight line for any values of ***a*** and ***b***.
2. What type of graph do you get for *y* = *x*2?
3. Compare this with *y* = 2*x*2 (*y* = 2 × *x* × *x*) and *y* = 3*x*2 and so on.
4. See what happens with *y* = *x*2 + 1, *y* = *x*2 – 1.
5. Experiment with graphs of the form *y* = -***a****x*2 + ***b*** (for any values of ***a*** *and* ***b***)

These graphs are called quadratic graphs because there is an *x*2 in them.

1. Experiment with other functions. Write down your findings.