GRAPHS

STRAIGHT LINE GRAPHS

Y = gradient

C = y intercept (where line crosses y axis)

Examples:

* Y = - 2x
* Y = 3x – 1
* X + y = 3 // can be re-written y = 3 – x
* 3x + 4y = 12 // can be re-written

If you recognize a form of *y = mx + c*, you can draw 2 points and draw a line through them

Example:

|  |  |
| --- | --- |
| X | Y |
| -1 | Y = 3(-1) – 1 = -3 – 1 = -4 |
| 0 | Y = 3(0) – 1 = 0 – 1 = -1 |
| 1 | Y = 3(1) – 1 = 3 – 1 = 2 |
| 2 | Y = 3(2) – 1 = 6 – 1 = 5 |

FUNCTIONS

* A function in math is similar to a function in programming; you pass a function an input, the function ‘does something’, and you get an output

Example - linear:

|  |  |
| --- | --- |
| **X** | **F(x)** |
| -2 | f(-2) = 2(-2) + 3 = -4 + 3 = -1 |
| -1 | f(-1) = 2(-1) +3 = -2 + 3 = 1 |
| 0 | f(0) = 2(0) + 3 = 0 + 3 = 3 |
| 1 | f(1) = 2(1) + 3 = 2 + 3 = 5 |
| 2 | f(2) = 2(2) + 3 = 4 + 3 = 7 |

If plotted, this would be a straight-line graph.

A straight-line graph is always in the form:

Example – quadratic:

|  |  |
| --- | --- |
| **X** | **F(x)** |
| -2 | 4 |
| -1 | 1 |
| 0 | 0 |
| 1 | 1 |
| 2 | 4 |

If plotted, this would be a *U* shape. Note also, how steep this graph would be: (1, 1), (2, 4), … (8, 64), … (250, 62500)

Examples of functions

|  |  |  |
| --- | --- | --- |
| **F(x)** | **Name** | **Graph shape** |
| F(x) = x^2 | Quadratic | *U* |
| F(x) = x^3 | Cubic |  |
| F(x) = x^4 | Quartic | *U* (steeper than quadratic) |
| F(x) = |x| |  | *V* |