







Task: for each graph...

- 1) Match one of the equations below – see red box
- 2) Give reasons for your answer (e.g. look at the “things to consider” below – see green box)
- 3) Match the roots from the options below (the x-values where the line would cross the x-axis) – see blue box

“Things to consider”:

- 1) Linear, Quadratic or Cubic?
- 2) Looking from left to right, the graph direction depends on the sign in front of the highest power x term
- 3) Look at the roots (where lines cross the x-axis). The values of x should correspond to a value of $y=0$ (you can check this by substituting root x-values into the equation)

Equations of lines

$$y = x^3$$

$$y = x^2$$

$$y = x$$

$$y = x^2 - 4$$

$$y = x^3 - 4x$$

$$y = 2 - 2x^2 - 3x$$

$$y = 1 - \frac{1}{4}x$$

$$y = 3x - x^2$$

$$y = 2x^3 - 4x^2 + 1$$

$$y = x^2 + 3x + 2$$

$$y = 2x + 1$$

$$y = x^3 + 1$$

$$y = 3x - x^3$$

Roots of equation

$$x = 0$$

$$x = 0$$

$$x = 0$$

$$x = -2 \text{ or } x = 2$$

$$x = -2 \text{ or } x = 0 \text{ or } x = 2$$

$$x = -0.5$$

$$x = -1$$

$$x = -2 \text{ or } x = 0.5$$

$$x = -0.4 \text{ or } x = 0.6 \text{ or } x = 1.8$$

$$x = 0 \text{ or } x = 3$$

$$x = 4$$

$$x = -1.75 \text{ or } x = 0 \text{ or } x = 1.75$$

$$x = -2 \text{ or } x = -1$$