

Algebra and Graphs

Questions can be quite variable - but some issues are common.

(a) Factor Theorem. If $(x+a)$ is a factor of polynomial $f(x)$ then $f(-a) = 0$ (and v.v.).

(b) Be able to do long division of a polynomial by a factor. Illustrated in the worked examples

(c) Know how graphs transform

eg $f(x)$ moves a units in $-ve$ x direction for $f(x+a)$
 $f(x)$ " " " " $+ve$ " " for $f(x-a)$

Transforming from $f(x)$ to $f(ax)$

If $a > 1$ $f(x)$ is squashed in x direction

eg if $a = 2$ all values of x for a given y are halved.

If $a < 1$ $f(x)$ is stretched in x direction

eg if $a = \frac{1}{3}$ all values of x for given y are multiplied by 3.

Transforming $f(x)$ to $f(x) + a$ just moves $f(x)$ in the y direction by a .

(d) You should know the general shape of quadratics, cubics,
 $y = f(x) = \frac{1}{x}$ or $\frac{1}{x^2}$