

Polynomials - exam level questions
(Questions from past papers)

1. Factorise fully $2x^3 - 3x^2 - 11x + 6$
2. Factorise fully $x^3 - 6x^2 + 9x - 4$
3. Factorise fully $2x^3 + 5x^2 - 4x - 3$
4. Find 'p' if $(x+3)$ is a factor of $x^3 - x^2 + px + 15$.
5. When $f(x) = 2x^4 - x^3 + px^2 + qx + 12$ is divided by $(x - 2)$ the remainder is 114. One factor of $f(x)$ is $(x + 1)$. Find p and q
6. One root of $2x^3 - 3x^2 + px + 30 = 0$ is $x = -3$. Find 'p' and hence find the other roots.
7. Show that $(x - 3)$ is a factor of $f(x) = 2x^3 + 3x^2 - 23x - 12$ and hence factorise $f(x)$ fully.
8. Find a real root of the equation $2x^3 - 3x^2 + 2x - 8 = 0$
Show algebraically that there are no other real roots.
9. Find 'k' if $(x - 2)$ is a factor of $x^3 + kx^2 - 4x - 12$
and hence factorise fully.
10. Express $x^3 - 4x^2 - 7x + 10$ in fully factorised form.

11. Show that $x = 2$ is a root of the equation

$$2x^3 + x^2 - 13x + 6 = 0$$

and hence find the other roots.

11. Given that $(x + 2)$ is a factor of $2x^3 + x^2 + kx + 2$, find the value of k . Hence solve the equation $2x^3 + x^2 + kx + 2 = 0$ when k takes this value.

13. Given that $(x - 2)$ and $(x + 3)$ are factors of $f(x) = 3x^3 + 2x^2 + cx + d$, find the values of 'c' and 'd'.