

Polynomials 3

1. Show that $x - 4$ is a factor of $2x^2 - 11x + 12$ and hence factorise fully.
2. Factorise fully $x^3 - 11x^2 + 26x - 16$
3. If $x + 3$ is a factor of $x^3 + kx^2 + 7x + 3$, find k and hence factorise fully.
4. Show that $x = 2$ is a root of the equation $x^3 + 5x^2 - 4x - 20 = 0$ and find the other roots.
5. Find the points where the curve $y = x^3 + 10x^2 - 9x - 90$ cuts the coordinate axes.
6. Factorise fully $x^3 + 2x^2 - x - 2$
7. If $x - 1$ is a factor of $x^3 - 3x^2 + kx - 1$, find k and hence factorise fully.
8. Show that $x = 1$ is a root of the equation $x^3 - 9x^2 + 20x - 12 = 0$ and find the other roots.
9. Show that $x = -4$ is a root of the equation $6x^3 + 25x^2 + 2x - 8 = 0$ and find the other roots.
10. If $x - 2$ is a factor of $f(x) = 2x^3 + kx^2 + 7x + 6$, find k and hence solve the equation $f(x) = 0$.

Answers

1. $(x-4)(2x-3)$

2. $(x-1)(x-2)(x-8)$

3. $k=5 \quad (x+3)(x+1)^2$

4. $x=-2$ or $x=2$ or $x=-5$

5. $(-10,0)$ $(-3,0)$ $(3,0)$ and $(0,90)$

6. $(x-1)(x+1)(x+2)$

7. $k=3 \quad (x-1)^3$

8. $x=1$ or $x=2$ or $x=6$

9. $x=-4$ or $x=\frac{1}{2}$ or $x=-\frac{2}{3}$

10. $k=-9 \quad x=-\frac{1}{2}$ or $x=2$ or $x=3$

11. $p=6$