Polynomials 2

1. Given that $x-1$ is a factor of x^3+kx^2-5x+6 , find the value of k and hence fully factorise the expression.

2. Given that $x=-1$ and $x=2$ are two roots of the equation $x^3+ax^2+2x+b=0$, establish the values of a and b and hence find the third root of the equation.

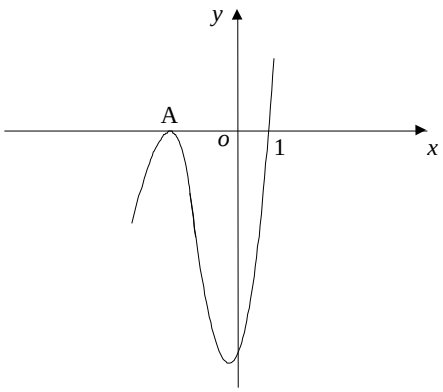
3. Show that $x+2y$ is a factor of $x^2+(2y+3)x+6y$.

4. Solve the equation $x^3-4x^2+x+6=0$.

5. Find the value of c if $x-2$ is a factor of the expression

$$x^3+(c+1)x^2-cx-18 .$$

6. The curve shown below has as its equation $y=x^3+5x^2+kx-9$.



(a) Given that the curve crosses the *x - axis* at the point $(1,0)$, find the value of k .

(b) Hence find the coordinates of the point A

7. When x^3-bx^2+3x-2 and $3x^3+2x^2-b^2x-4$ are both divided by $x-2$ the remainders are equal.
Find the two possible values of b .

8. Sketch the graph of $y=x^3-3x-2$.