## Polynomials

1. Show that $(x+3)$ is a factor of $f(x)=2 x^{3}+5 x^{2}-4 x-3$ and express $f(x)$ in fully factorised form.
2. Factorise fully:
a) $x^{3}-8 x^{2}+19 x-12$
b) $2 x^{3}+7 x^{2}+2 x-3$
3. Given that $(x+3)$ is a factor of $f(x)=2 x^{3}-3 x^{2}+K x-15$, find the value of $K$ and factorise fully when $K$ has this value.
4. Given that $(2 x-1)$ is a factor of $8 x^{3}+4 x^{2}+K x+15$, find the value of $K$ and factorise $f(x)$ fully when $K$ has this value.
5. Find the values of $a$ and $b$ if $(x-3)$ and $(x+2)$ are factors of $x^{3}+a x^{2}+b x+42$.
6. From the graph determine the function $y=f(x)$.

7. Sketch the graph of $y=x^{3}+x^{2}-x-1$.

## Revision

8. Find the area enclosed by the graphs of $y=6-x-x^{2}$ and $y=x+3$
