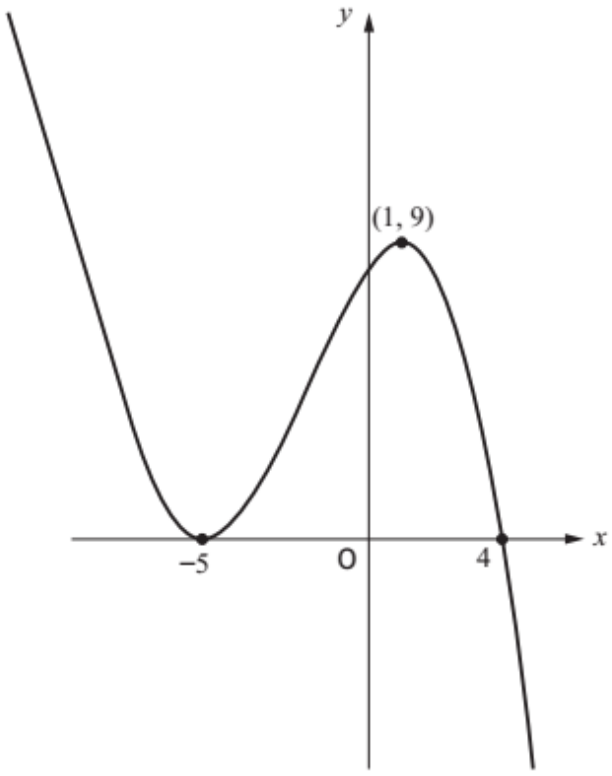
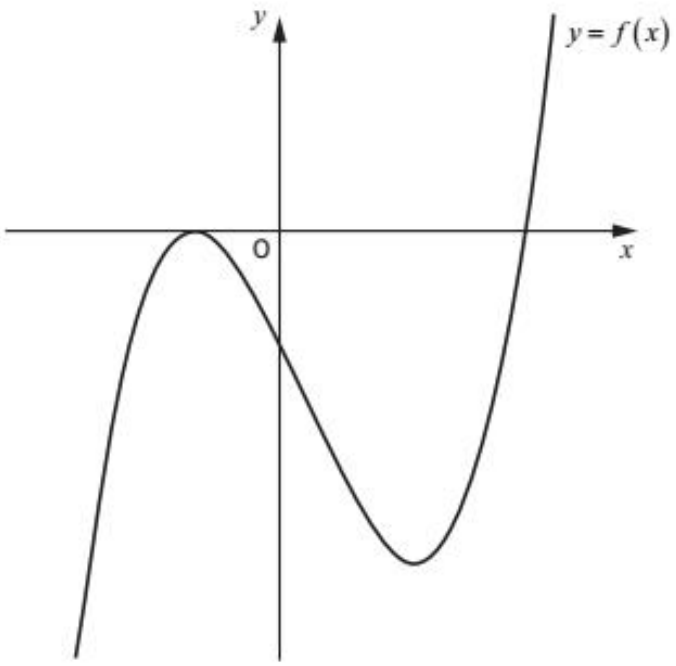
Y	Q	P	POLYNOMIALS
15	3	1	Show that $(x+3)$ is a factor of $x^3-3x^2-10x+24$ and hence factorise $x^3-3x^2-10x+24$ fully. **4**
16	15	1	The diagram below shows the graph with equation $y=f(x)$, where $f(x)=k(x-a)(x-b)^2$.  (a) Find the values of a, b and k. **3** (b) For the function $g(x)=f(x)-d$, where d is positive, determine the range of values of d for which $g(x)$ has exactly one real root. **1**
16	3	2	` (a) (i) Show that $(x+1)$ is a factor of $2x^3-9x^2+3x+14$. **2** (ii) Hence solve the equation $2x^3-9x^2+3x+14=0$. **3**
17	2	2	(a) Show that $(x-1)$ is a factor of $f(x)=2x^3-5x^2+x+2$. **2** (b) Hence, or otherwise, solve $f(x)=0$. **3**

18	15	1	A cubic function, f, is defined on the set of real numbers. • $(x+4)$ is a factor of $f(x)$ • $x=2$ is a repeated root of $f(x)$ • $f'(-2)=0$ • $f'(x)>0$ where the graph with equation $y=f(x)$ crosses the y-axis Sketch a possible graph of $y=f(x)$ on the diagram in your answer booklet. **4**
18	7	2	(a) (i) Show that $(x-2)$ is a factor of $2x^3-3x^2-3x+2$. **2** (ii) Hence, factorise $2x^3-3x^2-3x+2$ fully. **2**
19	10	2	(a) Show that $(x+3)$ is a factor of $3x^4+10x^3+x^2-8x-6$. **2** (b) Hence, or otherwise, factorise $3x^4+10x^3+x^2-8x-6$ fully. **5**
22	13	1	(a) (i) Show that $(x+2)$ is a factor of $f(x)=x^3-2x^2-20x-24$. **2** (ii) Hence, or otherwise, solve $f(x)=0$. **3** The diagram shows the graph of $y=f(x)$.  (b) The graph of $y=f(x-k)$, $k>0$ has a stationary point at (1, 0). State the value of k. **1**