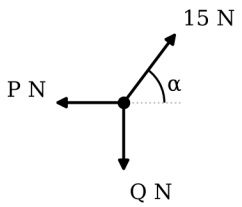
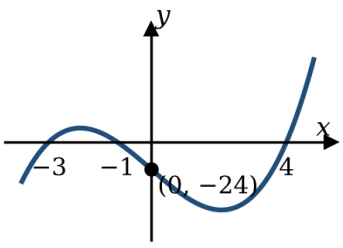
Day 116	A Level Maths: C Tier 10-a-day
1 Differentiate with respect to x: (a) $e^{5x} + \sin 5x$ (b) $5 \sin 5x$	
2 The line l has equation $y = \frac{5}{2}x - 4$. Find the equation of the line perpendicular to l that passes through $(-1, 6)$.	
3 Find the gradient of the curve $y = e^{3x - 9}$ at the point where $x = 3$.	
4 $X \sim N(90, 3^2)$. Given that $P(X > a) = 0.6$, find a to 3 s.f.	
5 A particle is in equilibrium under the three forces shown. $\cos \alpha = \frac{3}{5}$. Find P and Q.  	

Day 116	A Level Maths: C Tier 10-a-day
6 Express $\frac{-2x-6}{(x+1)(x+5)}$ in partial fractions.	
7 A particle moves in a straight line. Its acceleration at time t seconds is $(2t + 4)$ m s^{-2}. When $t = 0$ its velocity is 5 m s^{-1}. Find its velocity when $t = 2$.	
8 Express $4 \sin x + 3 \cos x$ in the form $R \cos(x - \alpha)$, where $R > 0$ and $0° < \alpha < 90°$. Give α to 1 decimal place.	
9 The diagram shows the curve $y = f(x)$, where $f(x)$ is a cubic. Find $f(x)$ in the form $k(x - a)(x - b)(x - c)$. 	
10 The table shows grouped data. Class: $10 \leq x < 20$; $20 \leq x < 30$; $30 \leq x < 40$; $40 \leq x < 50$ Frequency: 12, 13, 10, 6 Estimate the median, to 3 s.f.	