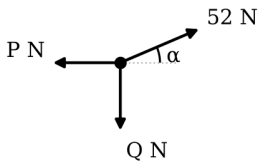
Day 17	A Level Maths: C Tier 10-a-day
1 For events A and B, P(A) = 0.45, P(B) = 0.5 and P(A ∪ B) = 0.65. (a) Find P(A ∩ B). (b) Find P(A′ ∩ B′).	
2 The line y = 2x + 3 is perpendicular to the line y = kx − 5. Find the value of k.	
3 Find $\int (4x + 3)^3 \, dx$.	
4 A particle is in equilibrium under the three forces shown. cos α = $\frac{12}{13}$. Find P and Q. 	
5 Write $3x^2 + 24x + 43$ in the form $a(x + p)^2 + q$.	

Day 17	A Level Maths: C Tier 10-a-day
6 $a = -3\mathbf{i} - 3\mathbf{k}$ and $b = -2\mathbf{i} - 2\mathbf{j}$. Find the angle between a and b, to 1 decimal place.	
7 $f(x) = \frac{1}{x+5} + 4$, $x \neq -5$. Find the range of f.	
8 $X \sim B(25, p)$. H_0: $p = 0.25$, H_1: $p > 0.25$. Find the critical region for a test at the 1% significance level.	
9 A particle moves in a straight line. Its velocity at time t seconds ($0 \leq t \leq 4$) is $v = (-t^2 + 4t)$ m s^{-1}. Find the maximum velocity and the time at which it occurs.	
10 The product of x and $(12 - x^2)$ is $P = 12x - x^3$, $x > 0$. Find the maximum value of P.	