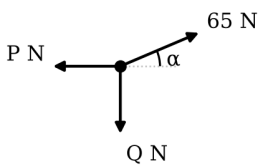
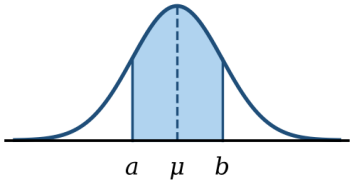
Day 138	A Level Maths: C Tier 10-a-day
1 Simplify $\sqrt{6} \times \sqrt{4}$, giving your answer in the form $p\sqrt{q}$, or as an integer.	
2 Find (a) $\int 12 \sec^2 4x \, dx$ (b) $\int 12 \cos 4x \, dx$	
3 Sketch $y = (x + 5)(x - 1)(x - 5)$. Write down the coordinates of the points where the curve meets the axes.	
4 Solve $\log_5 x = 4$.	
5 A particle is in equilibrium under the three forces shown. $\cos \alpha = \frac{12}{13}$. Find P and Q. 	

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6 The diagram shows the density of X ~ N(115, 5^2).
a and b are equal distances from the mean.
The shaded area is 0.77.
Find P(X > b).



7 Two forces (7**i** + 5**j**) N and (2**i** − 2**j**) N act on a particle of mass 3 kg. No other horizontal forces act. Find the acceleration of the particle as a vector in terms of **i** and **j**.

8 Use the quotient rule to find the derivative of $y = \frac{\ln x}{x}$.

9 X ~ B(120, 0.3). Use a normal approximation to find P(X ≥ 41), to 3 s.f.

10 The line $y = -2x + k$ is a tangent to the curve $y = x^2 - 8x - 4$.
Find the value of k.