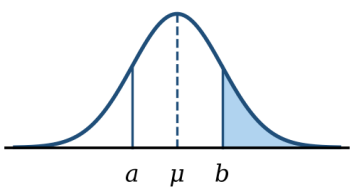
Day 195	A Level Maths: C Tier 10-a-day
1 An arithmetic series has first term -3, last term 73 and 20 terms. Find the sum of the series.	
2 The velocity of a ball is $(9\mathbf{i} + 12\mathbf{j})$ m s^{-1}, where $\mathbf{i}$ and $\mathbf{j}$ are perpendicular unit vectors. (a) Find the speed. (b) Find the acute angle between the direction of motion and the line of $\mathbf{i}$. Give 1 d.p.	
3 Use $\sin\theta \approx \theta$ to estimate sin 4°, giving your answer to 3 significant figures.	
4 $f(x) = 3x - 1$ and $g(x) = 3x + 2$. Find the value of $gf(-2)$.	
5 The diagram shows the density of $X \sim N(95, 5^2)$. a and b are equal distances from the mean. The shaded area, $P(X > b)$, is 0.34. Find $P(a < X < b)$. 	

Day 195	A Level Maths: C Tier 10-a-day
6 A(−2, −2), B(7, 1) and C(22, k). Given that A, B and C are collinear, find k.	
7 X ~ B(25, p). H_0: p = 0.2, H_1: p ≠ 0.2. In a sample, x = 1. Test at the 10% significance level.	
8 Find the gradient of the curve $y = (5x - 3)^3$ at the point where x = 0.	
9 A golf ball is projected from level ground with velocity $(15\mathbf{i} + 39.2\mathbf{j})$ m s^{-1} ($\mathbf{i}$ horizontal, $\mathbf{j}$ vertically up). Take g = 9.8 m s^{-2}. (a) Find the time of flight. (b) Find the horizontal range.	
10 Rationalise the denominator of $\frac{6}{\sqrt{6}}$. Give your answer in its simplest form.	