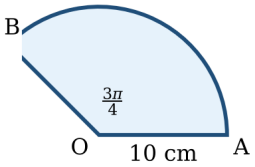
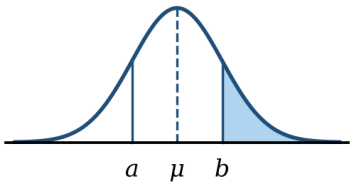
Day 109	A Level Maths: C Tier 10-a-day
1 $X \sim B(25, p)$. H_0: $p = 0.1$, H_1: $p < 0.1$. In a sample, $x = 0$. It is given that $P(X \leq 0) = 0.0718$. Test H_0 at the 5% significance level.	
2 Expand and simplify $(4 + \sqrt{5})(4 - \sqrt{5})$.	
3 The diagram shows sector OAB of a circle. Find, in terms of π, (a) the arc length AB, (b) the area of the sector. 	
4 The diagram shows the density of $X \sim N(30, 10^2)$. a and b are equal distances from the mean. The shaded area, $P(X > b)$, is 0.35. Find $P(a < X < b)$. 	
5 A curve has parametric equations $x = 2t + 2$, $y = 2t^2 + 4$. The point P has y-coordinate 22 and positive t. Find the coordinates of P.	

Day 109	A Level Maths: C Tier 10-a-day
6 A particle moves in a straight line. Its velocity at time t seconds ($0 \leq t \leq 8$) is $v = (-t^2 + 8t)$ m s^{-1}. Find the maximum velocity and the time at which it occurs.	
7 Use a double angle formula to find $\int \sin^2 x \, dx$.	
8 A car of mass 1000 kg tows a caravan of mass 500 kg on a level road with acceleration 0.25 m s^{-2}. Resistances: 300 N on the car, 200 N on the caravan. Find the driving force and the tow bar tension.	
9 Find the set of values of k for which $2x^2 + 4x + k = 0$ has real roots.	
10 Differentiate y = cosec 2x with respect to x.	