Day 38	A Level Maths: C Tier 10-a-day
1 Sketch $y = (x + 4)(x - 1)(x - 4)$. Write down the coordinates of the points where the curve meets the axes.	
2 A sector has radius 4 cm and arc length 6.40 cm. Find the angle of the sector in radians and the area of the sector.	
3 $X \sim B(30, 0.25)$. Find E(X) and Var(X).	
4 By writing 105° as 45° + 60°, find the exact value of sin 105°.	
5 $X \sim B(50, p)$ and $E(X) = 12.5$. Find p and Var(X).	

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6 Find the sum of the first 8 terms of the series $4 + 7 + 10 + 13 + ...$	
7 A lorry travelling at 20 m s^{-1} brakes uniformly and comes to rest after travelling 40 m. (a) Find the deceleration. (b) Find the time taken to stop.	
8 Express $6 \sin x + 8 \cos x$ in the form $R \cos(x - \alpha)$, where $R > 0$ and $0° < \alpha < 90°$. Give α to 1 decimal place.	
9 The line $y = 4x + k$ is a tangent to the curve $y = x^2 + 2x - 1$. Find the value of k.	
10 A cricket ball is projected vertically upwards with speed 28 m s^{-1} from ground level. Taking $g = 9.8$ m s^{-2}, find the maximum height it reaches above the ground.	