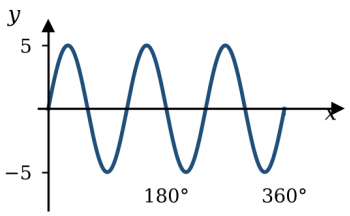
Day 167	A Level Maths: C Tier 10-a-day
1 The diagram shows the graph of $y = a \sin bx$ for $0° \leq x \leq 360°$, where a and b are positive integers. Find a and b. 	
2 A line has parametric equations $x = t + 1$, $y = 4t - 2$. Find its equation in the form $y = mx + c$.	
3 For 7 data pairs, with advertising spend (£s hundreds) from 12 to 22, the regression line is $S = 15 + 6a$. Estimate sales (£s thousands) when $a = 10$ and comment on the reliability.	
4 Prove by contradiction that there are no integers x and y such that $16x + 4y = 25$.	
5 Write down the exact values of (a) cot 150° (b) cosec 45°	

Day 167	A Level Maths: C Tier 10-a-day
6 A coin is dropped from rest from the top of a bridge of height 44.1 m. Take g = 9.8 m s^{-2} and ignore air resistance. Find (a) the time taken to reach the ground, (b) its speed on hitting the ground.	
7 X ~ B(15, p). H_0: p = 0.3, H_1: p ≠ 0.3. In a sample, x = 10. Test at the 10% significance level.	
8 Solve the simultaneous equations: $y = x^2 + 6x + 2$, $y = 3x + 6$.	
9 A uniform rod AB of mass 6 kg and length 5 m is supported by a pivot 1.25 m from A. A particle of mass m kg is attached at A and the rod rests horizontally in equilibrium. Find m.	
10 Express 5 sin x + 12 cos x in the form R sin(x + α), where R > 0 and 0° < α < 90°. Give α to 1 decimal place.	