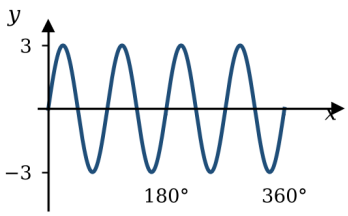
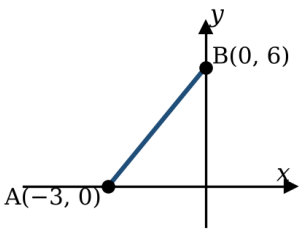
Day 92	A Level Maths: C Tier 10-a-day

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 The diagram shows a line meeting the axes at A and B.
Find (a) the equation of AB in the form $px + qy = r$ with integers p, q and r, (b) the length AB.



3 A particle of mass 4 kg is released from rest and falls 19.6 m. Take $g = 9.8$ m s^{-2}. Use energy to find (a) the loss in potential energy (3 s.f.), (b) the speed of the particle after falling 19.6 m.

4 In a histogram, the class 0 to 5 has frequency 25 and is drawn with a bar of height 2.5 cm. The class 5 to 15 has frequency 40. Find the height of its bar.

5 Solve $\log x + \log (x - 3) = \log 18$, $x > 3$.

Day 92	A Level Maths: C Tier 10-a-day
6 Solve the simultaneous equations: $y = x^2 - 9$, $y = -2x - 6$.	
7 $X \sim B(25, p)$. H_0: $p = 0.1$, H_1: $p \neq 0.1$. In a sample, $x = 7$. Test at the 5% significance level.	
8 A box of mass 20 kg rests on rough horizontal ground. The coefficient of friction is 0.5. Taking $g = 9.8$ m s^{-2}, find the maximum friction force that can act on the box.	
9 Variables x and y satisfy $y = ax^n$. A graph of $\log_{10} y$ against $\log_{10} x$ is a straight line with gradient $\frac{3}{2}$ and intercept 0.8. Find n and a, giving a to 3 significant figures.	
10 The curve C has equation $y = x^3 - 4x - 1$. C is reflected in the x-axis. Find the equation of the image, in the form y = ...	