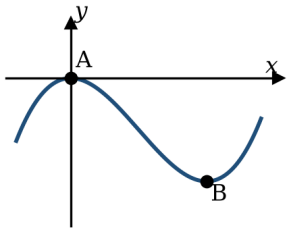
Day 129	A Level Maths: C Tier 10-a-day
1 $f(x) = 20 \sin x + 21 \cos x + 1$. Write $f(x)$ in the form $R \sin(x + \alpha) + 1$, with α in degrees to 1 d.p., and state the maximum value of $f(x)$.	
2 Find an equation of the line through A(7, 1) and B(6, 6), in the form $ax + by + c = 0$, where a, b and c are integers.	
3 θ is small and measured in radians. Use the small angle approximations to find an approximation for $5 \sin \theta + \cos \theta$.	
4 A crate of mass 2 kg is pulled along rough horizontal ground at constant speed by a horizontal force of 5.88 N. Take $g = 9.8$ m s^{-2}. Find the coefficient of friction between the crate and ground.	
5 30 pairs of data on daily mean temperature and sunshine hours have $r = -0.26$. Test, at the 5% significance level, for evidence of negative correlation. The critical value is -0.3061.	

Day 129	A Level Maths: C Tier 10-a-day
6 Find the coefficient of x^2 in the expansion of $(4 + 2x)^5$.	
7 X ~ B(50, 0.2). Use a normal approximation to find P(X ≤ 9), to 3 s.f.	
8 Two forces $(4\mathbf{i} - 4\mathbf{j})$ N and $(5\mathbf{i} + 7\mathbf{j})$ N act on a particle of mass 3 kg. No other horizontal forces act. Find the acceleration of the particle as a vector in terms of **i** and **j**.	
9 The diagram shows the curve $y = x^3 - 6x^2$. A and B are turning points. Find the coordinates of A and B. 	
10 Expand $(1 - x)^{-\frac{1}{2}}$ in ascending powers of x up to and including the term in x^2. State the range of values of x for which the expansion is valid.	