Day 193	A Level Maths: C Tier 10-a-day
1 Evaluate $16^{-\frac{1}{4}}$.	
2 The product moment correlation coefficient between hours of sunshine and ice cream sales is $r = -0.85$. Interpret this value.	
3 A circle has equation $(x - 4)^2 + (y + 2)^2 = 49$. Determine whether the point P(0, −8) is inside, outside or on the circle.	
4 A radioactive sample has mass $M = 100\, e^{-0.1t}$ grams after t days. Find the time for the mass to halve, to 3 significant figures.	
5 Divide $f(x) = 2x^4 - 5x^3 + 7x^2 - 9x - 4$ by $(x - 2)$. Find the quotient and the remainder.	

Day 193	A Level Maths: C Tier 10-a-day
6 X ~ B(20, p) and E(X) = 8. Find p and Var(X).	
7 f(x) = 9 sin x + 12 cos x + 1. Write f(x) in the form R sin(x + α) + 1, with α in degrees to 1 d.p., and state the maximum value of f(x).	
8 Three forces $(2\mathbf{i} - 4\mathbf{j})$ N, $(p\mathbf{i} + q\mathbf{j})$ N and $(-8\mathbf{i} + 5\mathbf{j})$ N act on a particle which is in equilibrium. $\mathbf{i}$ and $\mathbf{j}$ are perpendicular unit vectors. Find the values of p and q.	
9 Solve $\sin x = -\frac{1}{2}$ for $0° \leq x \leq 360°$.	
10 A train travelling at 18 m s^{-1} brakes uniformly and comes to rest after travelling 36 m. (a) Find the deceleration. (b) Find the time taken to stop.	