Day 255	A Level Maths: C Tier 10-a-day
1 Here are 5 values: 2, 14, 17, 20, 11 Find the mean and the standard deviation, to 3 s.f.	
2 Simplify $(2x^3)^2 \div 4$.	
3 A rope pulls a box with a force of 24 N at an angle of 60° above the horizontal. Find the horizontal and vertical components of the force, to 3 s.f.	
4 A geometric series has first term 13 and common ratio $\frac{1}{3}$. Find the sum to infinity.	
5 The curve $y = 7x - x^2$ and the line $y = 1x$ meet at the origin and at P. Find the area enclosed between them.	

Day 255	A Level Maths: C Tier 10-a-day
6 $x^2 + kx + 36 = 0$ has equal roots. Find the possible values of k.	
7 Variables x and y satisfy $y = ax^n$. A graph of $\log_{10} y$ against $\log_{10} x$ is a straight line with gradient 3 and intercept 0.6. Find n and a, giving a to 3 significant figures.	
8 X has probability density function $f(x) = \frac{1}{9}x^2$ for $0 \leq x \leq 3$, and 0 otherwise. Find $P(X < 2)$.	
9 $f(x) = 3 \sin x + 4 \cos x + 2$. Write f(x) in the form $R \sin(x + \alpha) + 2$, with α in degrees to 1 d.p., and state the maximum value of f(x).	
10 A particle moves in a straight line. Its acceleration at time t seconds is $(2t - 3)$ m s^{-2}. When t = 0 its velocity is 3 m s^{-1}. Find its velocity when t = 2.	