Day 176	A Level Maths: C Tier 10-a-day
1 For data set A, r = 0.48. For data set B, r = 0.88. Which data set has the stronger linear correlation? Give a reason.	
2 An arithmetic sequence begins −5, −6, −7, −8, ... Find (a) an expression for the nth term, (b) the 39th term.	
3 A systematic sample of 24 students is taken from a numbered list of 144. The first one selected is number 5. Find the number of the 7th one selected.	
4 Two cyclists start at the same time from points P and Q, 60 m apart, and cycle directly towards each other at constant speeds of 4 m s^{-1} and 8 m s^{-1}. Find the time until they meet.	
5 Solve $\cos(x + 20°) = \frac{\sqrt{3}}{2}$ for $0° \leq x \leq 360°$.	

Day 176	A Level Maths: C Tier 10-a-day
6 Find the sum of the first 23 terms of the series $4 + 12 + 20 + 28 + ...$	
7 Find the gradient of the curve $y = \sqrt{2x + 5}$ at the point where $x = 2$.	
8 Express $\frac{7x - 6}{(x - 2)(x + 2)}$ in partial fractions.	
9 $\frac{5x + 12}{(x + 2)(x + 3)} \equiv \frac{A}{x + 2} + \frac{B}{x + 3}$. Find A and B, and hence find $\int \frac{5x + 12}{(x + 2)(x + 3)}\,dx$.	
10 A runner travels 18 m at a constant speed of 6 m s^{-1}, then a further 80 m at a constant speed of 16 m s^{-1}. Find the average speed for the whole journey.	