Day 70	IGCSE 10-a-day
1 Here are the first five terms of a quadratic sequence. 13, 22, 35, 52, 73 Find an expression for the nth term.	
2 In triangle PQR, side QR is extended to S. Angle QPR = (3x − 15)° Angle PQR = (3x − 20)° Angle PRS = (4x + 1)° (a) Work out the value of x. (b) Work out the size of angle PRQ.	
3 The price of a phone is increased by 15%. The new price is then increased by 10%. Work out the overall percentage change in the price.	
4 Solve $3 \tan x° - 5 = -8$ for $0 \leq x \leq 360$	
5 The height of a tower is 1.7 m, truncated to 1 decimal place. Write down the error interval for the height of a tower, using h.	

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6 The curve $y = x^3 + ax^2 + bx$ has stationary points at $x = -1$ and $x = 1$. Find the values of a and b.	
7 y is inversely proportional to x. When x = 5, y = 4. Find the value of y when x = 10.	
8 The number of bacteria in a culture, N, after t hours is modelled by $N = -t^3 + 15t^2 + 2t + 500$ for $0 \leq t \leq 20$ Find the time at which N is increasing most rapidly, and the rate of increase at this time.	
9 A bag contains x white beads and 3 red beads. Two beads are taken at random without replacement. The probability that both are white is $\frac{6}{11}$. (a) Show that $5x^2 - 41x - 36 = 0$. (b) Hence work out the number of beads in the bag.	
10 A curve has equation $y = x^3 + 5x^2 + 9x - 3$. The tangent to the curve at the point A, where $x = -3$, meets the curve again at the point B. Find the coordinates of B.	