Day 342	IGCSE 10-a-day
1 A and B are the points (6, −7) and (−6, −5). AB is a diameter of a circle. Find an equation of the circle.	
2 In triangle PQR, side QR is extended to S. Angle QPR = (4x + 15)° Angle PQR = (x + 25)° Angle PRS = (4x + 49)° (a) Work out the value of x. (b) Work out the size of angle PRQ.	
3 $M = \begin{pmatrix} 3 & 3 \\ 3 & 4 \end{pmatrix}$. (a) Find M^{-1}. (b) Use your answer to (a) to solve 3x + 3y = −3 3x + 4y = −7	
4 $f(x) = 2x^3 - 6x + 3$ Find the y coordinate of the local maximum point and the y coordinate of the local minimum point.	
5 Here are the first five terms of a sequence. −7, −1, 29, 95, 209 The nth term is of the form $an^3 + bn + c$. Find the values of a, b and c.	

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6 The curve $y = 2x^3 - 3x^2 - 47x + 1$ has gradient -11 at two points. Find the coordinates of these points.	
7 The graph of $y = f(x)$ has a minimum point at $(5, -3)$. Write down the coordinates of the turning point of the graph of (a) $y = 3f(x)$ (b) $y = f(-x) + 1$	
8 A rectangle has area $(19 + 13\sqrt{5})$ cm^2 and length $(4 + \sqrt{5})$ cm. Find the width of the rectangle. Give your answer in the form $a + b\sqrt{5}$	
9 P is directly proportional to the square of v and inversely proportional to t. When v = 2 and t = 4, P = 8. Work out the value of P when v = 5 and t = 5.	
10 The curve C has equation $y = x^2 - 4x + 6$. The points A and B on C have x coordinates -1 and 3. The tangents to C at A and at B meet at the point T. Find the coordinates of T.	