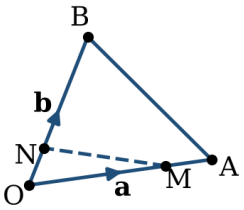
Day 241	IGCSE 10-a-day
1 Differentiate $5x^5 - 3x^4 + 4x^2 + 5x$ with respect to x.	
2 Work out $(3.3 \times 10^{-3}) \times (5.5 \times 10^{1})$. Give your answer in standard form.	
3 Here are the first five terms of a quadratic sequence. 0, 12, 34, 66, 108 Find an expression for the nth term.	
4 Two solid shapes, A and B, are mathematically similar. The surface area of A is 12 cm^2 and the surface area of B is 108 cm^2. The volume of A is 200 cm^3. Work out the volume of B.	
5 In triangle OAB, $\mathbf{OA} = \mathbf{a}$ and $\mathbf{OB} = \mathbf{b}$. M is on OA so that OM : MA = 3 : 1. N is on OB so that ON : NB = 1 : 3. Find $\mathbf{MN}$ in terms of $\mathbf{a}$ and $\mathbf{b}$. 	

Day 241	IGCSE 10-a-day
6 A curve has equation $y = x^2 + \frac{54}{x}$. (a) Show that the curve has a stationary point at $x = 3$. (b) Find the y coordinate of this point and decide whether it is a maximum or a minimum.	
7 $a = 9.6$ and $b = 2.2$, both correct to 1 decimal place. Work out the upper bound of $a + b$.	
8 A curve has equation $y = -x^2 + 2x + k$, where k is a constant. The tangent to the curve at the point where $x = -3$ passes through $(-4, -27)$. Find the value of k.	
9 $f(x) = 3x - 2$ and $g(x) = \frac{5}{x}$ (a) Find gf(x). (b) Solve $gf(x) = -\frac{5}{2}$	
10 A laptop loses 10% of its value each year. After 2 years it is worth £1,620. Work out its value when it was new. (Calculator)	