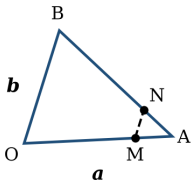
Day 334	IGCSE 10-a-day
1 Differentiate $-6x^4 + \frac{5}{x}$ with respect to x.	
2 OAB is a triangle. OA = **a** and OB = **b**. M is on OA with OM : MA = 3 : 1. N is on AB with AN : NB = 1 : 3. (a) Find ON in terms of **a** and **b**. (b) Show that MN is parallel to OB. The diagram is not drawn accurately. 	
3 Make r the subject of $P = 2\sqrt{r - 1} - 4$	
4 Write down the matrix that represents each transformation. (a) Rotation of 90° clockwise about the origin (b) Reflection in the line y = x	
5 A train travels at a constant speed of 108 km/h. It takes 55 seconds to cross completely over a bridge which is 1,250 m long. Work out the length of the train, in metres.	

Day 334	IGCSE 10-a-day
6 $y = 4x + \frac{4}{x}$ Find the coordinates of the stationary points and determine whether each is a maximum or a minimum.	
7 $M = \begin{pmatrix} 2 & -2 \\ 1 & 2 \end{pmatrix}$. (a) Find M^{-1}. (b) Use your answer to (a) to solve $2x - 2y = -4$ $x + 2y = -2$	
8 Show that $7^{m+2} + 7^m$ is always a multiple of 50.	
9 A piece of wire 28 cm long is cut into two pieces. One piece is bent to form a square of side x cm. The other piece is bent to form a rectangle whose length is three times its width. (a) Show that the total area, A cm^2, enclosed by the two shapes is $A = x^2 + \frac{3(28 - 4x)^2}{64}$. (b) Find the value of x for which A is least, and work out this least area.	
10 The mean of the heights in cm for the boys is 75. The mean of the heights in cm for the girls is 72. The mean for all of the boys and girls together is 74.4. Work out the ratio of the number of boys to the number of girls.	