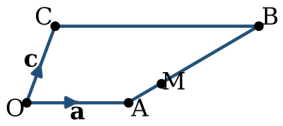
Day 57	IGCSE 10-a-day
1 The mean of 5 numbers is 89. One number is removed and the mean of the remaining 4 numbers is 108.5. Work out the number that was removed.	
2 The graph of $y = -2x^2 + 4x - 7$ has a turning point at P. Find the equation of the tangent to the curve at P.	
3 A car was bought for £4,700. Each year its value decreases by the same percentage. After 2 years it is worth £3,807. Work out the percentage decrease each year.	
4 $y = 2x^3 - 15x^2 + 36x - 1$ At the point where $x = -3$, is the curve increasing or decreasing? You must show your working.	
5 A population grows by 6% each year for 3 years. Work out the overall percentage increase. Give your answer correct to 3 significant figures.	

Day 57 **IGCSE 10-a-day**

6 The 2nd term of a geometric sequence is 96.
The 4th term of the sequence is 384.
All the terms of the sequence are positive.
(a) Work out the common ratio.
(b) Work out the first term.

7 OABC is a trapezium. OA is parallel to CB and CB = 2 × OA.
$\mathbf{OA} = \mathbf{a}$ and $\mathbf{OC} = \mathbf{c}$.
(a) Find $\mathbf{AB}$ in terms of $\mathbf{a}$ and $\mathbf{c}$.
(b) AM : MB = 1 : 3. Find $\mathbf{OM}$.



8 Solve $\frac{2}{x+3} - \frac{4}{x-5} = \frac{3}{2}$

9 A skip is a cuboid with a square base of side x metres and height h metres, and has a closed top. Its volume is 125 m^3.
(a) Show that the total outside surface area, A m^2, is $A = 2x^2 + \frac{500}{x}$.
(b) Find the minimum possible value of A, showing that it is a minimum.

10 A sector of a circle has radius 18 cm and angle 240°.
The sector is made into a cone by joining the two straight edges together.
(a) Work out the radius of the base of the cone.
(b) Work out the exact volume of the cone.
Give your answer in terms of π, as a surd if necessary.