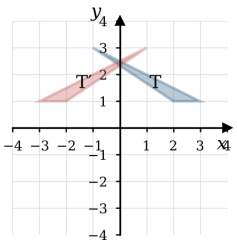
Day 227	IGCSE 10-a-day
1 Tariq invests £4,000. The rates of interest for the next 3 years are 4%, 5% and 6%. Compound interest is paid. Work out the value of the investment after 3 years. Give your answer to the nearest penny. (Calculator)	
2 The curve $y = x^3 + kx$ has a stationary point at $x = -1$. (a) Find the value of k. (b) Find the coordinates of the other stationary point.	
3 The line L has equation $12x - 5y = 120$. L crosses the x-axis at the point A and the y-axis at the point B. (a) Find the coordinates of A and B. (b) Work out the area of triangle OAB, where O is the origin.	
4 The ratio of juniors to seniors in a school is 1 : 2. 80% of the juniors and 35% of the seniors play a sport. What percentage of all of these students play a sport?	
5 The tangent at the point P on the curve $y = 3x^2 + x + 7$ is perpendicular to the line $x - 5y = -3$. Find the coordinates of P.	

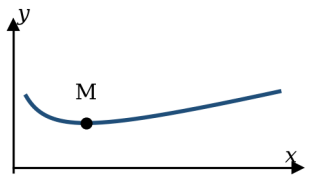
Day 227 **IGCSE 10-a-day**

6 Triangle T is mapped onto triangle T′ by a single transformation.
(a) Describe fully this transformation.
(b) Write down the matrix that represents it.



7 A sector of a circle has radius 6 cm and angle 180°.
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.

8 The diagram shows a sketch of the curve $y = x + \frac{9}{x}$ for $x > 0$.
The curve has a minimum point at M.
Find the coordinates of M, justifying that it is a minimum.



9 The HCF of two numbers is 8 and their LCM is 240.
One of the numbers is 40.
Work out the other number.

10 $M = \begin{pmatrix} -2 & 5 \\ -3 & 6 \end{pmatrix}$.
(a) Find M^{-1}.
(b) Use your answer to (a) to solve
$-2x + 5y = -11$
$-3x + 6y = -15$