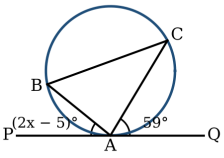
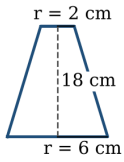
Day 187	IGCSE 10-a-day
1 The normal to the curve $y = -3x^2 - 5x + 3$ at the point where $x = -1$ meets the x-axis at N. Find the coordinates of N.	
2 PAQ is a tangent to the circle at A. B and C are points on the circle. Angle PAB = $(2x - 5)°$, angle ACB = $(3x - 27)°$ and angle CAQ = 59°. (a) Work out the value of x. (b) Work out the size of angle BAC. The diagram is not drawn accurately. 	
3 £8,000 is invested for 4 years at 3% per year. Work out how much more interest is earned with compound interest than with simple interest. (Calculator)	
4 $y = x^3 - 3x^2 - 9x + 8$ At the point where $x = -2$, is the curve increasing or decreasing? You must show your working.	
5 Given that $x > 0$, solve $x^{-\frac{3}{2}} = \frac{1}{8}$	

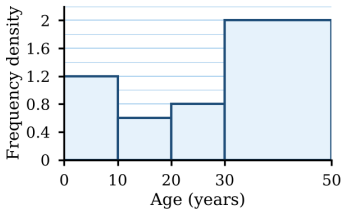
Day 187 **IGCSE 10-a-day**

6 Two curves have equations $y = 4x^2 + 5x$ and $y = x^2 + 29x - 8$.
Find the value of x at which the curves have the same gradient.

7 A cone is cut parallel to its base to make a smaller cone and a frustum.
The frustum has height 18 cm, top radius 2 cm and base radius 6 cm.
Work out the volume of the frustum. Give your answer in terms of π.



8 The histogram shows the ages of visitors to a museum.
(a) Work out the total number of visitors.
(b) Estimate the number of visitors with an age between 5 years and 15 years.



9 x is an acute angle and $\tan x = \frac{5}{8}$.
Find the exact value of (a) sin x (b) cos x.
Give each answer as a fraction, rationalising any denominator.

10 The curve $y = -x^2 - 6x + 7$ crosses the x-axis at the points A and B.
(a) Find the coordinates of A and B.
(b) Find the coordinates of the maximum point of the curve.