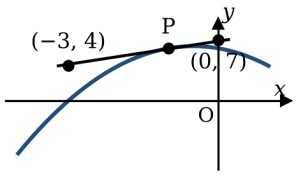
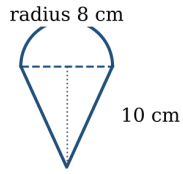
Day 273	IGCSE 10-a-day
1 Expand and simplify $(x - 1)(x + 5)(x - 5)$	
2 The curve $y = x^3 + 6x^2 + kx$ has a stationary point at $x = -1$. (a) Find the value of k. (b) Find the coordinates of the other stationary point.	
3 Simplify fully $\frac{3\sqrt{32}}{2\sqrt{2}}$	
4 The diagram shows part of the curve $y = -x^2 - x + 6$. The line shown is the tangent to the curve at the point P. (Not drawn accurately.) (a) Use the two marked points on the tangent to work out its gradient. (b) Use differentiation to find the x coordinate of P. 	
5 The point P(8, −8) lies on the graph of $y = f(x)$. Write down the coordinates of the image of P on the graph of $y = 3f(x - 1) + 4$	

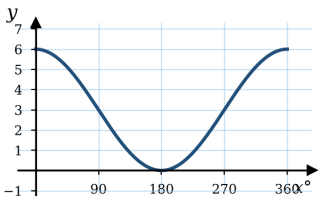
Day 273 **IGCSE 10-a-day**

6 A solid is made from a hemisphere joined to a cone. Both have radius 8 cm and the slant height of the cone is 10 cm.
Work out the total surface area of the solid.
Give your answer in terms of π.



7 $y = x + \frac{16}{x}$
Find the coordinates of the stationary points and determine whether each is a maximum or a minimum.

8 The diagram shows the graph of $y = a \cos bx° + c$ for $0 \leq x \leq 360$.
a, b and c are integers.
Find the values of a, b and c.



9 Given that $(a + \sqrt{13})(b + \sqrt{13}) = 37 + 11\sqrt{13}$, where a and b are positive integers with $a < b$, find the values of a and b.

10 Container A holds juice and water in the ratio 1 : 6.
Container B holds juice and water in the ratio 6 : 3.
21 litres from container A is mixed with some of container B.
The ratio of juice to water in the mixture is 13 : 12.
Work out how many litres were taken from container B.