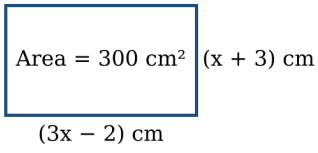
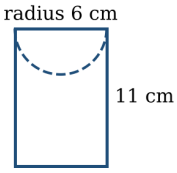
Day 174	IGCSE 10-a-day
1 The mean of 9 numbers is 81. A new number is added and the mean of all 10 numbers is 75.9. Work out the new number.	
2 A particle P moves in a straight line. After t seconds its displacement from a fixed point O is s metres, where $s = -t^3 - 8t^2 + 8t \ (t > 0)$ Find (a) the velocity of P, (b) the acceleration of P, when t = 3.	
3 ABCD is a parallelogram. A = (−1, 1), B = (−2, 4) and D = (−4, −1). Find the coordinates of C and of the point where the diagonals meet.	
4 $y = x(x - 1)(x - 3)$ Find $\frac{dy}{dx}$.	
5 The diagram shows a rectangle of length (3x − 2) cm, width (x + 3) cm and area 300 cm^2. (a) Show that $3x^2 + 7x - 306 = 0$. (b) Work out the perimeter of the rectangle. 	

Day 174 **IGCSE 10-a-day**

6 Solve $4^{4x+2} = 2^4$

7 A solid cylinder of radius 6 cm and height 11 cm has a hemispherical hollow of the same radius cut out of the top.
Work out the volume of the solid that is left.
Give your answer in terms of π.



8 Describe fully the single transformation that maps the graph of y = f(x) onto the graph of
(a) y = f(−x)
(b) y = f(x) − 1

9 $f(x) = \frac{2x-3}{x-2}$ where $x \neq 2$
(a) Show that ff(x) = x.
(b) Write down $f^{-1}(x)$.

10 The curves $y = 2x^2 + 2x + 4$ and $y = 3x^2 + 8x + 13$ touch at one point.
Find the coordinates of this point and the equation of the common tangent.