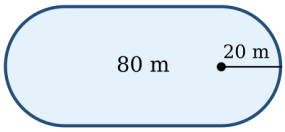
Day 109	IGCSE 10-a-day
1 The price of a phone is increased by 25%. The new price is then decreased by 25%. Work out the overall percentage change in the price.	
2 The mean of 5 numbers is 99. A new number is added and the mean of all 6 numbers is 86. Work out the new number.	
3 $f(x) = -x^2 + 6x + 8$ Use differentiation to find the coordinates of the turning point of the graph of $y = f(x)$. State whether it is a maximum or a minimum.	
4 The diagram shows a running track made from a rectangle and two semicircles. (a) Work out the total length of the boundary of the track. (b) Work out the area enclosed by the track. Give your answers in terms of π. The diagram is not drawn accurately. 	
5 Beth spent $\frac{2}{3}$ of her money on a coat. She then spent $\frac{1}{7}$ of the money that was left on a bag. She then had £720 left. How much money did Beth have to start with?	

Day 109	IGCSE 10-a-day

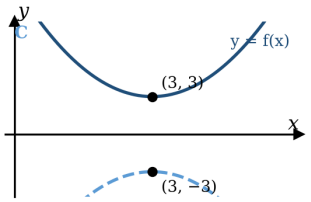
6 $f(x) = \frac{-5x - 3}{4x + 5}$, $x \neq -\frac{5}{4}$.

Find $f^{-1}(x)$.

7 $f(x) = 2x^3 + \frac{96}{x}$

Find the values of x for which $f'(x) = 0$.

8 The diagram shows the graph of $y = f(x)$ with a minimum point at (3, 3).
The dashed curve C is the image of $y = f(x)$ after a single transformation.
The maximum point of C is $(3, -3)$.
Write down the equation of C in terms of f.



9 $f(x) = -x - 2$ and $g(x) = x^2 - 6$
Solve $fg(x) = gf(x)$

10 The diagram shows the curve $y = 24 - 2x^2$.
Rectangle ABCD has A, B on the x-axis and C, D on the curve. B is (x, 0).
(a) Show that the area of ABCD is $-4x^3 + 48x$.
(b) Find the maximum area of ABCD, showing that it is a maximum.

