Day 19	IGCSE 10-a-day

1

$f(x) = x^3 + \frac{1875}{x}$

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

2

ABC is an isosceles triangle with AB = AC.
Angle BAC = $(4x)°$
Angle ABC = $(x + 27)°$
(a) Work out the value of x.
(b) Work out the size of angle BAC.

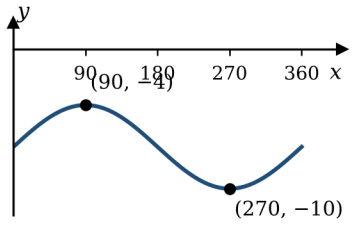
3

$f(x) = \frac{-3x + 2}{3x + 3}$, $x \neq -1$.

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

4

The diagram shows the graph of $y = a \sin x° + c$ for $0 \leq x \leq 360$.
Some points on the graph are labelled.
Find the value of a and the value of c.



5

Isla invests £4,500 for 5 years at 3.5% per year compound interest.
Work out the value of the investment at the end of the 5 years.
Give your answer to the nearest penny.
(Calculator)

Day 19	IGCSE 10-a-day
6 The curve $y = -x^3 + 9x^2 - 24x + k$, where k is a constant, has the x-axis as a tangent. Find the two possible values of k.	
7 x is an acute angle and $\tan x = \frac{8}{13}$. (a) Find the exact value of sin x. (b) Find the exact value of cos x. Give each answer as a fraction or a surd with a rational denominator.	
8 $y = 3x + \frac{48}{x}$ Find the values of x for which y is increasing.	
9 Expand and simplify $(2 + 2\sqrt{5})(1 - 2\sqrt{5})$ Give your answer in the form $p + q\sqrt{5}$	
10 $f(x) = \frac{-5x - 3}{x - k}$, where k is a constant and $x \neq k$. The function f is its own inverse, so $f^{-1}(x) = f(x)$. Find the value of k.	