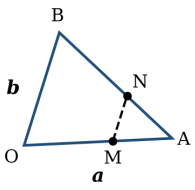
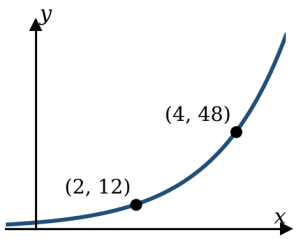
Day 237	IGCSE 10-a-day
1 Differentiate $-2x^5 - 5x^2 - 4$ with respect to x.	
2 f(x) = 3x + 1 and g(x) = x^2 + 7 (a) Find gf(x). Give your answer in the form ax^2 + bx + c. (b) Solve gf(x) = 8	
3 f(x) = −4x + 7 and g(x) = x^2 + x + 5. (a) Find fg(x). (b) Find gf(x).	
4 A car loses 8% of its value each year. After 2 years it is worth £846.40. Work out its value when it was new. (Calculator)	
5 OAB is a triangle. OA = **a** and OB = **b**. M is on OA with OM : MA = 3 : 2. N is on AB with AN : NB = 2 : 3. (a) Find ON in terms of **a** and **b**. (b) Find MN in terms of **a** and **b**. The diagram is not drawn accurately. 	

Day 237 **IGCSE 10-a-day**

6 A closed cylinder (a drum) has radius r cm, height h cm and total surface area 384π cm^2.
(a) Show that its volume, V cm^3, is $V = 192\pi r - \pi r^3$.
(b) Find the maximum value of V in terms of π, and show that h = 2r when V is a maximum.

7 The diagram shows the graph of $y = ka^x$, where k and a are constants and $a > 0$.
The curve passes through the points (2, 12) and (4, 48).
Find the value of k and the value of a.



8 A curve has equation $y = x^3 - 3x^2 + 7x + 4$.
Find the equations of the two tangents to the curve that are parallel to the line $y = 7x + 6$.

9 Simplify $\frac{1}{3+\sqrt{7}} + \frac{1}{3-\sqrt{7}}$
Give your answer with a rational denominator.

10 The diagram shows the graph of y = f(x) with a minimum point at $(-2, 2)$.
The dashed curve C is the image of y = f(x) after a translation.
The minimum point of C is $(-5, -1)$.
Write down the equation of C in terms of f.

