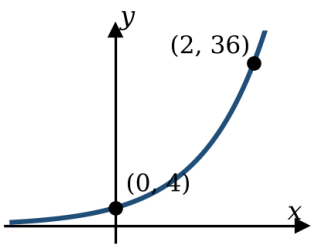
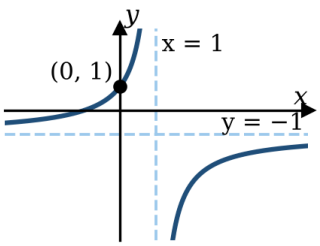
Day 233	A Level Maths: C Tier 10-a-day
1 Differentiate with respect to x: (a) 3 ln x (b) e^{3x} + sin 5x	
2 Solve $x - 2 \geq 0$.	
3 Find (a) $\int 8 \cos 2x \, dx$ (b) $\int (4e^x + \frac{2}{x}) \, dx$	
4 A stratified sample of size 25 is taken from 175 members: 28 Under 30, 77 30 to 50, 70 Over 50. How many Over 50 should be in the sample?	
5 The diagram shows the curve $y = ab^x$, where $b > 0$. Find the values of a and b. 	

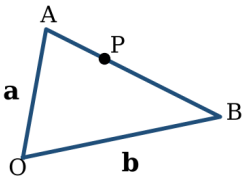
Day 233 **A Level Maths: C Tier 10-a-day**

6 Car A passes a point O at constant speed 5 m s^{-1}.
At that instant car B starts from rest at O with constant acceleration 2 m s^{-2} in the same direction. Find the time when B catches up A.

7 The diagram shows the graph of $y = \frac{k}{x - a} + c$ with its asymptotes. Find the values of a, c and k.



8 In the diagram, OA = **a**, OB = **b**, and P lies on AB with AP : PB = 1 : 2.
Find AB and OP in terms of **a** and **b**.



9 A lorry moving in a straight line with constant acceleration increases its speed from 3 m s^{-1} to 8 m s^{-1} in 12 s.
Find the distance it travels in this time.

10 A population is $N(\mu, 8^2)$. H_0: $\mu = 160$, H_1: $\mu > 160$.
A sample of 9 has mean $\bar{x} = 165.07$.
Test at the 5% level. Critical value: $z = 1.645$.