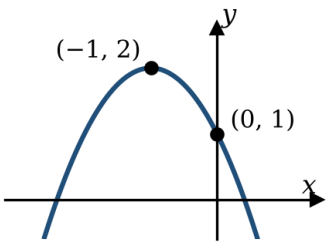
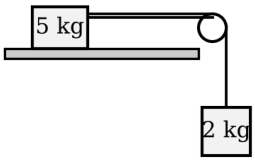
Day 60	A Level Maths: C Tier 10-a-day
1 Differentiate with respect to x: (a) $e^{4x} + \sin 5x$ (b) $4 \ln x$	
2 A researcher wants to find out the health of the residents of a village. Give one advantage and one disadvantage of using systematic sampling.	
3 $x_{n+1} = \ln (x_n + 4) + 1$, with $x_0 = 2$. Find x_1, x_2 and x_3 to 3 decimal places.	
4 The diagram shows a sketch of a quadratic curve. Find its equation in the form $y = a(x - p)^2 + q$. 	
5 Write down the exact value of sin 240°.	

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6 The point P(−5, 1) lies on the curve y = f(x). Write down the coordinates of the image of P on
(a) y = −f(x) (b) y = f(−x)

7 A 5 kg particle on a smooth horizontal table is joined by a light string over a smooth pulley to a hanging 2 kg particle, as shown. The system is released from rest. Take g = 9.8 m s^{-2}. Find the tension.



8 Express $\frac{-4x}{(x+1)(x-3)}$ in partial fractions.

9 A block is on the point of sliding down a rough plane inclined at α to the horizontal, where tan α = $\frac{4}{3}$. Find the coefficient of friction.

10 X ~ B(20, p). H_0: p = 0.5, H_1: p < 0.5.
In a sample, x = 6. It is given that P(X ≤ 6) = 0.0577.
Test H_0 at the 10% significance level.