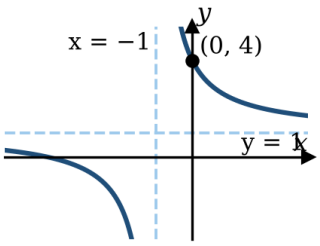
Day 157 **A Level Maths: C Tier 10-a-day**

1 Simplify $(2x^4)^2 \div 4x^3$.

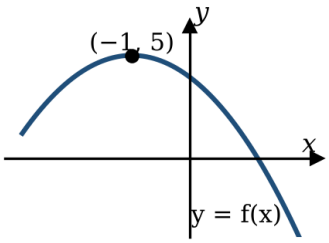
2 Solve $\log_2 (4x + 3) = 3$.

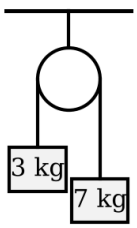
3 The diagram shows the graph of $y = \frac{k}{x - a} + c$ with its asymptotes. Find the values of a, c and k.



4 θ is small and measured in radians.
Use the small angle approximations to find an approximation for $\sin 3\theta \tan \theta$.

5 The diagram shows the curve y = f(x). The maximum point is shown. Write down the coordinates of the maximum point on the curve with equation
(a) y = f(x) + 1 (b) y = f(x − 1)



Day 157	A Level Maths: C Tier 10-a-day
6 A runner travels 20 m at a constant speed of 5 m s^{-1}, then a further 16 m at a constant speed of 4 m s^{-1}. Find the average speed for the whole journey.	
7 X ~ B(10, p). H_0: p = 0.5, H_1: p > 0.5. Find the critical region for a test at the 5% significance level.	
8 Solve $\cos x = \frac{1}{2}$ for $0° \leq x \leq 180°$.	
9 Two particles of masses 3 kg and 7 kg hang from the ends of a light inextensible string over a smooth pulley and are released from rest. Take g = 9.8 m s^{-2}. Find the acceleration and the tension in the string. 	
10 X ~ B(10, p). H_0: p = 0.2, H_1: p > 0.2. In a sample, x = 5. It is given that $P(X \geq 5) = 0.0328$. Test H_0 at the 5% significance level.	