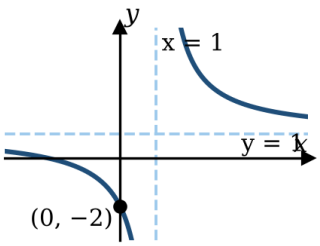
Day 108	A Level Maths: C Tier 10-a-day
1 Evaluate $49^{-\frac{1}{2}}$.	
2 Find $\int (5x + 1)^2 \, dx$.	
3 Simplify $(2x^4)^3 \div 2x$.	
4 The volume of a sphere increases at 24 cm^3/s. Find the rate of increase of the radius when r = 2. Give your answer to 3 s.f.	
5 A ball of weight 9 N hangs from a light string, pulled aside by a horizontal force P N so that the string makes an angle θ with the vertical, where $\tan\theta = \frac{4}{3}$. Find P and the tension T N.	

Day 108 **A Level Maths: C Tier 10-a-day**

6 A and B are mutually exclusive, with P(A) = 0.15 and P(B) = 0.45.
(a) Find P(A ∪ B).
(b) Find the probability that neither A nor B happens.

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 X ~ B(15, p). H_0: p = 0.3, H_1: p ≠ 0.3. In a sample, x = 7.
Test at the 5% significance level.

9 Use a double angle formula to find
$\int \sin x \cos x \, dx$.

10 The graph shows the velocity of a train over 43 seconds as it moves in a straight line.
(a) Find its acceleration in the first 5 s.
(b) Find the total distance travelled.

