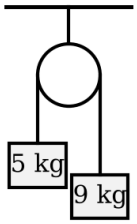
Day 220	A Level Maths: C Tier 10-a-day
1 Solve $2^{x+2} = 80$. Give your answer to 3 significant figures.	
2 A crate of mass 2 kg is pulled along rough horizontal ground at constant speed by a horizontal force of 7.84 N. Take g = 9.8 m s^{-2}. Find the coefficient of friction between the crate and ground.	
3 Write 2 log a + 3 log b − log c as a single logarithm.	
4 Write $\frac{15+\sqrt{3}}{\sqrt{3}}$ in the form $p\sqrt{3} + q$.	
5 For 7 data pairs, with advertising spend (£s hundreds) from 4 to 14, the regression line is S = 11 + 6a. Estimate sales (£s thousands) when a = 6 and comment on the reliability.	

Day 220 **A Level Maths: C Tier 10-a-day**

6 Two particles of masses 5 kg and 9 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.



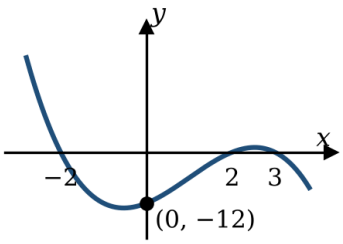
7 The circle $(x - 1)^2 + (y - 2)^2 = 25$ passes through P(5, 5).
Find the gradient of the tangent to the circle at P.

8 Use the trapezium rule with 4 strips to estimate

$$\int_0^4 \sqrt{x^3 + 2}\, dx,$$

giving your answer to 3 significant figures.

9 The diagram shows the curve y = f(x), where f(x) is a cubic. Find f(x) in the form $k(x - a)(x - b)(x - c)$.



10 X ~ B(100, 0.3). Find E(X) and Var(X).