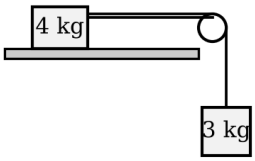
Day 277	A Level Maths: C Tier 10-a-day
1 Simplify $\sqrt{24} + \sqrt{150}$, giving your answer in the form $p\sqrt{6}$.	
2 Find $\int (4x + 3)^2 \, dx$.	
3 The product moment correlation coefficient between revision time and test score is $r = -0.86$. Interpret this value.	
4 Find the exact value of $\int_0^{\frac{\pi}{4}} 12 \sin 4x \, dx$.	
5 A particle of mass 2 kg slides from rest down a smooth plane inclined at angle α to the horizontal, where $\sin \alpha = \frac{1}{2}$. Take $g = 9.8$ m s^{-2}. Find (a) its acceleration, (b) its speed after 2 s.	

Day 277 **A Level Maths: C Tier 10-a-day**

6 An arithmetic series has first term 2 and common difference 3. Find the smallest n for which the sum of the first n terms exceeds 300.

7 A 4 kg particle on a smooth horizontal table is joined by a light string over a smooth pulley to a hanging 3 kg particle, as shown. The system is released from rest. Take g = 9.8 m s^{-2}. Find the tension.



8 A systematic sample of 30 houses is taken from a numbered list of 450.
The first one selected is number 4. Find the number of the 9th one selected.

9 A sector has radius 10 cm and area 75.0 cm^2. Find the angle of the sector in radians and the arc length.

10 The point P(4, 1) lies on the curve y = f(x). Write down the coordinates of the image of P on
(a) y = f(x + 2) (b) y = f(x) + 2