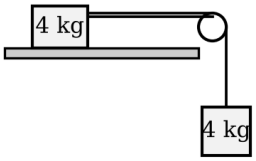
Day 28	A Level Maths: C Tier 10-a-day
1 Write down the exact value of tan 45°.	
2 In an arithmetic sequence $u_4 = 12$ and $u_{11} = 54$. Find the first term and the common difference.	
3 A particle moves in a straight line with velocity $v = (3t^2 + 6t + 5)$ m s^{-1} at time t seconds. Find the distance travelled between t = 1 and t = 3 (the particle does not turn round).	
4 The curve $y = x^2 - x + 1$ is translated by the vector $\begin{pmatrix}1\\5\end{pmatrix}$. Find the equation of the new curve, giving your answer in the form $y = ax^2 + bx + c$.	
5 The continuous random variable X has probability density function $f(x) = k(x + 3)$ for $0 \leq x \leq 2$, and 0 otherwise. Find the value of k.	

Day 28 **A Level Maths: C Tier 10-a-day**

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



7 Express $\frac{-2x-1}{(x+2)(x+1)}$ in partial fractions.

8 $\frac{x}{(x+2)(x+3)} \equiv \frac{A}{x+2} + \frac{B}{x+3}$.

Find A and B, and hence find $\int \frac{x}{(x+2)(x+3)}\,dx$.

9 A reporter asks the first 15 people who walk out of a college for their views.
Name the sampling method used.

10 Differentiate with respect to x:
(a) $e^{4x} + \sin 2x$
(b) $4\,e^{2x}$