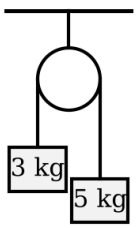
Day 6	A Level Maths: C Tier 10-a-day
1 (a) Convert 210° to radians, giving your answer in terms of π. (b) Convert $\frac{3\pi}{4}$ radians to degrees.	
2 Seven daily rainfall readings (mm) from the Large Data Set are: 4.4, tr, tr, 1.2, 3.8, 2.2, 0.6. Here 'tr' means a trace, which is treated as 0. Find the mean daily rainfall to 3 s.f.	
3 A line has equation $\mathbf{r} = \begin{pmatrix} 4 \\ 1 \\ 0 \end{pmatrix} + t\begin{pmatrix} -2 \\ 1 \\ -1 \end{pmatrix}$. Find the coordinates of the point on the line where t = 3.	
4 Sketch $y = 3 \times 2^x - 6$. Write down the equation of the asymptote and the coordinates where the curve meets the axes.	
5 $\mathbf{a} = 2\mathbf{i} + 3\mathbf{j}$ and $\mathbf{b} = 2\mathbf{i} - 3\mathbf{j} - 2\mathbf{k}$. Find the angle between a and b, to 1 decimal place.	

Day 6	A Level Maths: C Tier 10-a-day
6 A particle of mass 8 kg slides from rest down a smooth plane inclined at angle α to the horizontal, where $\sin\alpha = \frac{3}{5}$. Take g = 9.8 m s^{-2}. Find (a) its acceleration, (b) its speed after 4 s.	
7 Prove by contradiction that if n^2 is even, then n is even. Begin: "Assume n is odd, so n = 2k + 5 for an integer k."	
8 X ~ B(200, 0.6). Use a normal approximation to find $P(X \geq 117)$, to 3 s.f.	
9 Two particles of masses 3 kg and 5 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 The nth term of a sequence is $u_n = 2n + 1$. Find $\sum_{r=1}^{10} u_r$.	