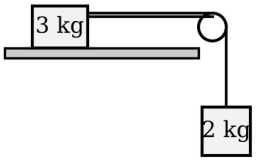
Day 91	A Level Maths: C Tier 10-a-day
1 A rock is thrown vertically upwards with speed 29.4 m s^{-1}. Take g = 9.8 m s^{-2}. (a) Find the time taken to reach its greatest height. (b) Find the greatest height reached.	
2 Solve $\tan x = \frac{\sqrt{3}}{3}$ for $0° \leq x \leq 360°$.	
3 Write $x^2 + 10x + 2$ in the form $(x + p)^2 + q$, and state the coordinates of the minimum point of $y = x^2 + 10x + 2$.	
4 Find the gradient of the curve $y = e^{5x - 15}$ at the point where x = 3.	
5 $f(x) = x^3 - 3x^2 - 4x + 12$ (a) Show that $(x - 2)$ is a factor of f(x). (b) Factorise f(x) completely.	

Day 91 **A Level Maths: C Tier 10-a-day**

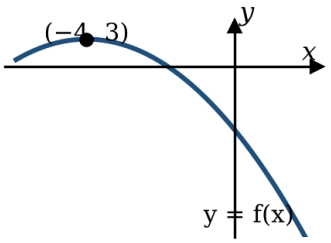
6 A 3 kg particle on a smooth horizontal table is joined by a light string over a smooth pulley to a hanging 2 kg particle, as shown. The system is released from rest. Take g = 9.8 m s^{-2}. Find the tension.



7 X ~ B(80, 0.5). Use a normal approximation to find P(X ≥ 42), to 3 s.f.

8 Use the quotient rule to find the derivative of $y = \frac{e^x}{4x + 1}$.

9 The diagram shows the curve y = f(x). The maximum point is shown. Write down the coordinates of the maximum point on the curve with equation
(a) y = 2f(x) (b) y = f(x + 3)



10 Seven daily sunshine readings (hours) from the Large Data Set are: 5, n/a, 4, 0.8, n/a, 1, 0.8. Here 'n/a' means no reading was recorded. Leaving these out, find the mean to 3 s.f.