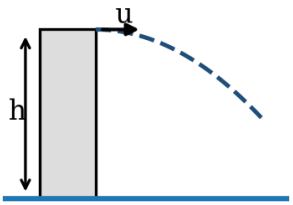
Day 121	A Level Maths: C Tier 10-a-day
1 Rationalise the denominator of $\frac{1}{3-\sqrt{2}}$. Write your answer in the form $p + q\sqrt{2}$.	
2 $OA = \begin{pmatrix} 2 \\ -3 \\ -3 \end{pmatrix}$ and $OB = \begin{pmatrix} 11 \\ -5 \\ 3 \end{pmatrix}$. Find AB and |AB|, and a unit vector in the direction of AB.	
3 Evaluate $8^{\frac{2}{3}}$.	
4 In how many ways can a team of 2 be chosen from 7 students?	
5 Solve $\cos x(\cos x + 1) = 0$ for $0° \leq x \leq 360°$.	

Day 121 **A Level Maths: C Tier 10-a-day**

6 A ball is thrown horizontally at 10 m s^{-1} from the top of a vertical cliff of height 44.1 m above the sea. Take g = 9.8 m s^{-2}. Find (a) the time taken to reach the sea, (b) the horizontal distance of the landing point from the cliff.



7 X ~ B(8, 0.6). Find P(X > 6), giving your answer to 3 s.f.

8 Express $\frac{-9x + 13}{(x - 5)(x + 3)}$ in partial fractions.

9 A particle moving in a straight line with constant acceleration 3 m s^{-2} travels 260 m in 10 s. Find its initial speed.

10 The curve $y = 4x - x^2$ and the line $y = 2x$ meet at the origin and at P.
Find the area enclosed between them.