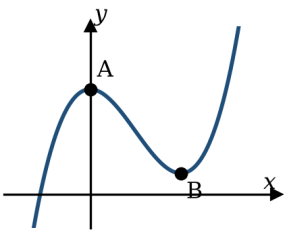
Day 215	A Level Maths: C Tier 10-a-day
1 Simplify $\sqrt{6} \times \sqrt{20}$, giving your answer in the form $p\sqrt{q}$, or as an integer.	
2 The product moment correlation coefficient between hours of sunshine and ice cream sales is r = 0.81. Interpret this value.	
3 A light plank rests on a pivot. A child of mass 30 kg sits 1 m from the pivot on one side. Where must a child of mass 15 kg sit on the other side for the plank to balance horizontally?	
4 A systematic sample of 30 students is taken from a numbered list of 450. The first one selected is number 10. Find the number of the 4th one selected.	
5 θ is small and measured in radians. Use the small angle approximations to find an approximation for $\frac{\sin 2\theta}{\tan \theta}$.	

Day 215 **A Level Maths: C Tier 10-a-day**

6 A is (3, −3) and B is (13, −11).
Find (a) the midpoint of AB,
(b) the length of AB, as a surd in simplest form.

7 The diagram shows the curve $y = x^3 - 3x^2 + 5$.
A and B are turning points. Find the coordinates of A and B.



8 The line $y = 2x + k$ is a tangent to the curve $y = x^2 + 6x + 2$.
Find the value of k.

9 A particle P moves in a straight line. Its displacement from O at time t seconds is s metres, where $s = 2t^3 + 3t^2 - 6t$.
Find its velocity when $t = 2$.

10 Solve $-8\sin^2 x + 6 = 0$
for $0° \leq x \leq 360°$.