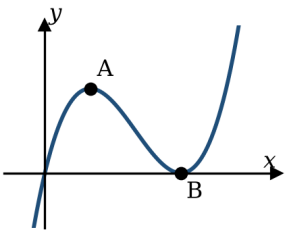
Day 42	A Level Maths: C Tier 10-a-day
1 Solve $4 \ln x = 3$. Give your answer to 3 significant figures.	
2 Prove that the sum of seven consecutive integers is a multiple of 7.	
3 The values x are coded using $y = (x - 50) \div 4$. The coded values have mean $\bar{y} = 3.9$ and standard deviation 1.5. Find the mean and standard deviation of x.	
4 Find the sum of the first 6 terms of the geometric series $96 + 48 + 24 + ...$	
5 A(3, −2), B(15, 6) and C(30, 16). Show that A, B and C are collinear and find AB : BC.	

Day 42 **A Level Maths: C Tier 10-a-day**

6 The discrete random variable X has P(X = x) = k(x^2 + 2) for x = 1, 2, 3, 4.
(a) Find the value of k.
(b) Find P(X ≥ 2).

7 The diagram shows the curve $y = x^3 - 6x^2 + 9x$.
A and B are turning points. Find the coordinates of A and B.



8 A block of mass 10 kg is pulled along rough horizontal ground by a horizontal force of 69 N. The coefficient of friction is 0.5. Take g = 9.8 m s^{-2}. Find the acceleration.

9 Express $\frac{-5x - 7}{(x - 1)(x + 3)}$ in partial fractions.

10 The velocity of a boat is $(-6\mathbf{i} - 8\mathbf{j})$ m s^{-1}, where **i** and **j** are perpendicular unit vectors.
(a) Find the speed.
(b) Find the acute angle between the direction of motion and the line of **i**. Give 1 d.p.