Day 329	A Level Maths: C Tier 10-a-day
1 A circle has equation $x^2 + y^2 + 12x - 8y + 7 = 0$. Find the centre and the radius of the circle.	
2 In how many ways can a team of 2 be chosen from 9 members?	
3 The table shows values of y = f(x). x: 0 0.5 1 1.5 2 2.5 y: 7.6 8.5 3.7 3.3 8.3 2.8 Use the trapezium rule to estimate the area under the curve between x = 0 and x = 2.5.	
4 A uniform rod AB of mass 4 kg and length 4 m is supported by a pivot 0.5 m from A. A particle of mass m kg is attached at A and the rod rests horizontally in equilibrium. Find m.	
5 X has probability density function $f(x) = \frac{3}{64}x^2$ for $0 \leq x \leq 4$, and 0 otherwise. Find P(X < 2).	

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6 $a = 3\mathbf{i} + 3\mathbf{j} - 3\mathbf{k}$ and $b = 2\mathbf{i} + 2\mathbf{k}$. Find the angle between a and b, to 1 decimal place.	
7 A geometric series has first term 14 and common ratio $\frac{3}{4}$. Find the sum to infinity.	
8 A lorry travelling at 24 m s^{-1} brakes uniformly and comes to rest after travelling 120 m. (a) Find the deceleration. (b) Find the time taken to stop.	
9 Find the sum of the first 9 terms of the geometric series 2 + 4 + 8 + ...	
10 $f(x) = x^3 - 4x - 8$. Use the Newton-Raphson method with $x_0 = 3$ to find x_1, giving your answer to 3 decimal places.	