Day 29	A Level Maths: C Tier 10-a-day
1 $x_{n+1} = (3x_n + 7)^{\frac{1}{3}}$, with $x_0 = 1$. Find x_1, x_2 and x_3 to 3 decimal places.	
2 A cyclist travelling at 24 m s^{-1} brakes uniformly and comes to rest after travelling 72 m. (a) Find the deceleration. (b) Find the time taken to stop.	
3 How many different arrangements are there of the letters of the word BALLOON?	
4 A circle has equation $(x - 3)^2 + (y - 3)^2 = 36$. Determine whether the point P(2, −2) is inside, outside or on the circle.	
5 (a) Convert 30° to radians, giving your answer in terms of π. (b) Convert $\frac{5\pi}{12}$ radians to degrees.	

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6 Divide $f(x) = x^3 - 17x - 5$ by $(x + 4)$. Find the quotient and the remainder.	
7 Solve $\tan x = -1$ for $0 \leq x \leq 2\pi$. Give your answers in terms of π.	
8 Find an equation of the line through A$(-2, -1)$ and B$(-6, 2)$, in the form $ax + by + c = 0$, where a, b and c are integers.	
9 A train starts from rest and moves in a straight line with constant acceleration 1.5 m s^{-2}. It travels 48 m. Find the time taken.	
10 $X \sim B(100, 0.25)$. Use a normal approximation to find $P(X \leq 25)$, to 3 s.f.	