Day 248	A Level Maths: C Tier 10-a-day
1 Seven daily sunshine readings (hours) from the Large Data Set are: n/a, 2.6, 1, n/a, 1.2, 1.4, 0.6. Here 'n/a' means no reading was recorded. Leaving these out, find the mean to 3 s.f.	
2 A car starts from rest and moves in a straight line with constant acceleration 3 m s^{-2}. It travels 54 m. Find the time taken.	
3 Find the equation of the line parallel to $x + 3y = -7$ that passes through $(5, -4)$. Give the answer in the form $y = mx + c$.	
4 A has coordinates $(-3, 0, 0)$ and B has coordinates $(-1, 6, -3)$. Find (a) the vector AB, (b) the distance AB, (c) the midpoint of AB.	
5 A ball is thrown vertically upwards with speed 9.8 m s^{-1}. Take g = 9.8 m s^{-2}. (a) Find the time taken to reach its greatest height. (b) Find the greatest height reached.	

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6 Express $6 \sin x + 8 \cos x$ in the form $R \sin(x + \alpha)$, where $R > 0$ and $0° < \alpha < 90°$. Give α to 1 decimal place.	
7 A line has parametric equations $x = 4t + 4$, $y = 3t - 1$. Find its equation in the form $y = mx + c$.	
8 The continuous random variable X has probability density function $f(x) = kx^2$ for $0 \leq x \leq 1$, and 0 otherwise. Find the value of k.	
9 The line $y = x + k$ is a tangent to the curve $y = x^2 - 3x + 4$. Find the value of k.	
10 Express $\frac{7x + 17}{(x + 3)(x + 1)}$ in the form $\frac{A}{x + 3} + \frac{B}{x + 1}$. Find the values of A and B.	