Day 60	A Level Maths: B Tier 10-a-day
1 A summary of the ages, a years, of 9 members of a club gives $\Sigma a = 221$ and $\Sigma a^2 = 6723$. Find the mean and the standard deviation (3 s.f.).	
2 Solve $\cos 2x = \cos x$ for $0 \leq x \leq 360°$, giving answers to 1 d.p. where necessary.	
3 Solve $x^2 + 10x + 24 > 0$.	
4 Given that $\sin A = \frac{5}{13}$ and $\cos B = \frac{4}{5}$, where A and B are acute, find the exact value of $\sin(A - B)$.	
5 A curve has parametric equations $x = t$, $y = \frac{4}{t}$, $t \neq 0$. Find a Cartesian equation of the curve.	

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6 A particle P moves on a straight line from O. At time t s its velocity is $6t^2 - 54t + 120$ m s^{-1}. Find the first time P is at instantaneous rest, and its distance from O then.	
7 Find the coefficient of x^3 in the expansion of $(3 + 3x)(2 + x)^6$.	
8 A train accelerates uniformly from rest at 0.5 m s^{-2} for 6 s, then travels at constant speed for 15 s, and finally decelerates uniformly at 0.5 m s^{-2} to rest. Find the total distance travelled and the total time of the journey.	
9 For 14 pairs of data, $S_{xx} = 90$, $S_{yy} = 200$ and $S_{xy} = 73$. Find the PMCC (3 s.f.) and describe the correlation.	
10 Solve $2\tan^2 x + \sec x - 13 = 0$ for $0 \leq x \leq 360°$, giving answers to 1 d.p.	