Day 237	A Level Maths: C Tier 10-a-day
1 Solve $x^2 + x - 20 \geq 0$.	
2 Of 70 people, 35 are women. 20 of the women and 24 of the men walk to work. One person is chosen at random. Given that the person walks to work, find the probability they are a woman.	
3 $x_{n+1} = \sqrt{2x_n + 5}$, with $x_0 = 3$. Find x_1, x_2 and x_3 to 3 decimal places.	
4 A particle has initial velocity $(-\mathbf{i} - 4\mathbf{j})$ m s^{-1} and constant acceleration $(-2\mathbf{i} + \mathbf{j})$ m s^{-2}. Find its velocity after 3 s.	
5 (a) Show that $x^2 - x - 4 = 0$ can be rearranged to $x = 1 + \frac{4}{x}$. (b) Use x_{n+1} = this formula with $x_0 = 2$ to find x_1, x_2 to 3 d.p.	

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6 A car starts from rest and moves in a straight line with constant acceleration 1 m s^{-2}. It travels 2 m. Find the time taken.	
7 A(2, 3), B(8, 9) and C(12, k). Given that A, B and C are collinear, find k.	
8 $f(x) = 3x - 2$ and $g(x) = x^2 - 3$. Find (a) fg(x), (b) gf(x).	
9 The table shows grouped data. Class: $10 \leq x < 20$; $20 \leq x < 30$; $30 \leq x < 40$; $40 \leq x < 50$ Frequency: 4, 8, 13, 7 Estimate the median, to 3 s.f.	
10 Solve the simultaneous equations: $y = x^2 - 3$, $y = x - 3$.	