Day 156	A Level Maths: C Tier 10-a-day
1 A horizontal force of 119 N acts on a crate of mass 10 kg on a smooth horizontal surface. Find the acceleration.	
2 The table shows values of y = f(x). x: 1 1.25 1.5 1.75 2 2.25 y: 7 2.6 4.2 2.2 3.8 2.1 Use the trapezium rule to estimate the area under the curve between x = 1 and x = 2.25.	
3 Find the remainder when $-x^3 - x^2 + 5x + 7$ is divided by $(x - 1)$.	
4 The discrete random variable X has this distribution. x: 3, 4, 5, 6 P(X = x): 0.3, 0.3, 0.1, 0.3 Find E(X) and Var(X).	
5 Solve $\|x - 2\| \geq 4$.	

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6 Use the product rule to differentiate $y = x^3 \sin 3x$.	
7 In a histogram, the class 0 to 5 has frequency 25 and is drawn with a bar of height 4 cm. The class 5 to 15 has frequency 30. Find the height of its bar.	
8 A particle moves in a straight line. Its velocity at time t seconds is $v = (t^2 - 6t + 5)$ m s^{-1}. (a) Find the times when the particle is at rest. (b) Find its acceleration at the first of these times.	
9 Expand $(1 - 3x)^{\frac{1}{2}}$ in ascending powers of x up to and including the term in x^2. State the range of values of x for which the expansion is valid.	
10 A farmer has 30 m of fencing for three sides of a rectangular pen; the fourth side is a wall. Find the maximum area of the pen.	