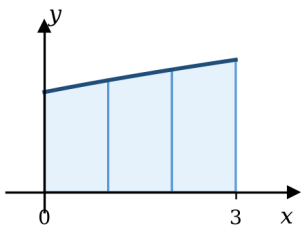
Day 172	A Level Maths: C Tier 10-a-day
1 A block of mass 4 kg is pulled along rough horizontal ground by a horizontal force of 19.8 N. The coefficient of friction is 0.25. Take g = 9.8 m s^{-2}. Find the acceleration.	
2 The diagram shows the curve $y = \sqrt{x + 4}$ from x = 0 to x = 3 divided into 3 strips of equal width. Use the trapezium rule with these strips to estimate the shaded area to 3 s.f. 	
3 Find an equation of the line through A(−4, −6) and B(−5, 1), in the form ax + by + c = 0, where a, b and c are integers.	
4 A particle moves in a straight line. Its acceleration at time t seconds is (4t + 5) m s^{-2}. When t = 0 its velocity is 1 m s^{-1}. Find its velocity when t = 3.	
5 Use the substitution $u = x^2 + 1$ to find $\int 2x(x^2 + 1)^2 \, dx$.	

Day 172	A Level Maths: C Tier 10-a-day
6 $X \sim B(30, p)$. H_0: $p = 0.4$, H_1: $p < 0.4$. Find the critical region for a test at the 5% significance level.	
7 Solve $2\cos^2 x - 3\cos x + 1 = 0$ for $0° \leq x \leq 360°$.	
8 Solve $-x^2 + 6x - 8 > 0$.	
9 $X \sim B(60, 0.25)$. Use a normal approximation to find $P(X \geq 13)$, to 3 s.f.	
10 $f(x) = x^3 + x^2 - 22x - 40$ (a) Show that $(x + 4)$ is a factor of $f(x)$. (b) Factorise $f(x)$ completely.	