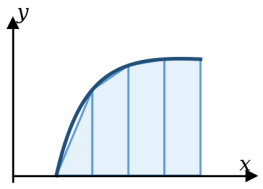
Day 356	A Level Maths: B Tier 10-a-day
1 Marks are normal: Biology N(70, 5^2), Chemistry N(40, 8^2). Anna scores 72.5 in Biology and 36 in Chemistry. Which is her better performance, relatively?	
2 Solve $x^2 - 5x < 6$.	
3 A cyclist moving in a straight line with constant acceleration increases its speed from 3 m s^{-1} to 15 m s^{-1} while covering 54 m. Find (a) the acceleration, (b) the time taken.	
4 The diagram shows the trapezium rule with 4 strips. Use it to estimate $\int_1^3 \frac{\ln x}{x}\,dx$, to 3 s.f. 	
5 y = f(x) has a maximum point at (−4, −4). Find the turning point on the curve: (a) y = f(−x) (b) y = 2f(x) (c) $y = f(\frac{x}{2})$	

Day 356	A Level Maths: B Tier 10-a-day
6 The continuous random variable X has pdf f(x) = kx for $0 \leq x \leq 3$, and 0 otherwise. (a) Find the value of k. (b) Find P(X > 2). (c) Find E(X).	
7 Find the coefficient of x^3 in the expansion of $(3 - 4x)(1 - 3x)^4$.	
8 Find the exact value of $\int_1^4 (x^2 + \frac{2}{x})\, dx$.	
9 A particle of mass 3 kg is suspended in equilibrium by two light strings attached to a horizontal ceiling. The strings make angles α and β with the ceiling, where $\tan\alpha = \frac{4}{3}$ and $\tan\beta = \frac{3}{4}$. Take $g = 9.8$ m s^{-2}. Find the tension in each string.	
10 Solve $\frac{dy}{dx} = (2 + y)e^{-x}$, given that $y = 1$ when $x = 0$.	