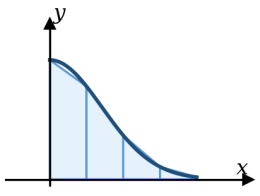
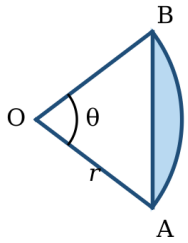
Day 169	A Level Maths: B Tier 10-a-day
1 A van of mass 1200 kg moves along a straight horizontal road. The engine produces a driving force of 3000 N and the resistance to motion is 600 N. Find the acceleration of the van.	
2 A summary of the masses, m grams, of 7 eggs gives $\Sigma m = 229$ and $\Sigma m^2 = 7827$. Find the mean and the standard deviation (3 s.f.).	
3 Find the x-coordinate(s) of the stationary point(s) of the curve $y = \frac{x}{x^2 + 25}$.	
4 A block of mass 5 kg is projected along a rough horizontal surface with speed 14 m s^{-1} and comes to rest after sliding 25 m. Take g = 9.8 m s^{-2}. Use work and energy to find the coefficient of friction.	
5 The diagram shows the trapezium rule with 4 strips. Use it to estimate $\int_0^2 e^{-x^2}\,dx$, to 3 s.f. 	

Day 169 **A Level Maths: B Tier 10-a-day**

6 A charity raises £150 in week 1. In each following week it raises £15 more than in the previous week.
(a) Find the amount raised in week 8.
(b) Find the total for the first 13 weeks.

7 X ~ B(12, 0.3) and Y ~ B(12, 0.6) are independent.
Find P(X = 3 and Y ≤ 8), to 3 significant figures.

8 The shaded region is the segment cut off by the chord AB of a circle with centre O and radius 9 cm. Angle AOB = 0.8 radians.
Find the area of the segment, to 3 s.f.



9 Express $\frac{-3\sqrt{2}}{2+\sqrt{2}}$ in the form $p + q\sqrt{2}$, where p and q are integers.

10 Solve the simultaneous equations
$2x + y = 15$
$x^2 + y^2 = 125$