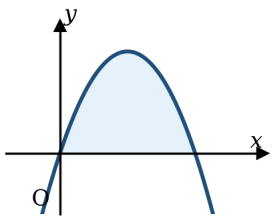
Day 200	A Level Maths: C Tier 10-a-day
1 $f(x) = 5x - 2$ and $g(x) = 2x + 2$. Find the value of $gf(0)$.	
2 Three forces $(2\mathbf{i} + 4\mathbf{j})$ N, $(-3\mathbf{i} + 5\mathbf{j})$ N and $(p\mathbf{i} + q\mathbf{j})$ N act on a particle which is in equilibrium. $\mathbf{i}$ and $\mathbf{j}$ are perpendicular unit vectors. Find the values of p and q.	
3 Express $\frac{5x + 11}{(x + 3)(x + 2)}$ in the form $\frac{A}{x + 3} + \frac{B}{x + 2}$. Find the values of A and B.	
4 Solve $x^2 + 10x + 1 = 0$, giving your answers in the form $p \pm \sqrt{q}$.	
5 A fair die is rolled until a six appears. X is the number of rolls. Find $P(X \leq 3)$, to 3 s.f.	

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6 Given that $\frac{dy}{dx} = \frac{x}{y}$ and $y = 4$ when $x = 0$, find y^2 in terms of x.

7 Find the set of values of x satisfying both $3x - 1 < -13$ and $x^2 + 7x + 10 < 0$.

8 The diagram shows the curve $y = x(2 - x)$. Find the area of the shaded region, between the curve and the x-axis.



9 For data set A, $r = -0.44$. For data set B, $r = -0.91$.
Which data set has the stronger linear correlation? Give a reason.

10 A particle of weight 24 N hangs from a light string, pulled aside by a horizontal force P N so that the string makes an angle θ with the vertical, where $\tan\theta = \frac{5}{12}$. Find P and the tension T N.