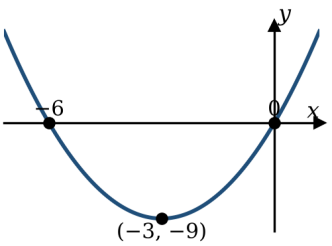
Day 189	A Level Maths: B Tier 10-a-day
1 Given that $y = \tan 5x$, find $\frac{dy}{dx}$, and the gradient of the curve when $x = \frac{\pi}{20}$.	
2 Find the sum of all the multiples of 9 that lie between 21 and 336.	
3 A sector of a circle has radius 13 cm and angle 270°. Find the perimeter of the sector, in terms of π.	
4 Two forces $(7\mathbf{i} + 7\mathbf{j})$ N and $(5\mathbf{i} - 2\mathbf{j})$ N act on a particle of mass 2 kg. Find the magnitude of the acceleration of the particle.	
5 Solve $\frac{dy}{dx} = \frac{6y}{x}$ for $x > 0$, given that $y = 3$ when $x = 1$.	

Day 189 **A Level Maths: B Tier 10-a-day**

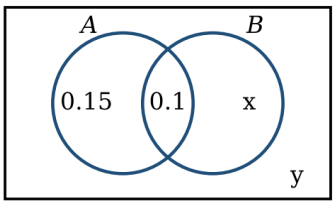
6 The diagram shows the curve y = f(x), a quadratic.
(a) Find the coordinates of the local maximum point of y = |f(x)|.
(b) How many solutions has |f(x)| = 9?



7 X ~ B(25, p). H_0: p = 0.2 is to be tested against H_1: p > 0.2 at the 5% significance level.
Find the critical region and the actual significance level.

8 A ball is thrown vertically upwards at 4.9 m s^{-1} from a point 58.8 m above horizontal ground.
Take g = 9.8 m s^{-2}.
Find the time before it hits the ground.

9 The Venn diagram shows probabilities for events A and B, which are independent.
Find the values of x and y.



10 The line y = 2x − 2 meets the circle $(x + 3)^2 + (y + 3)^2 = 25$ at the points A and B. Find the coordinates of A and B, and the exact length of the chord AB.