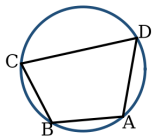
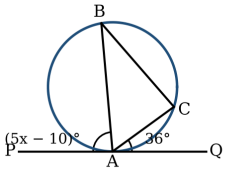
Day 25	IGCSE 10-a-day
1 A car is bought for £20,000. Each year its value falls by 30%. After how many whole years is it first worth less than a quarter of its original value? (Calculator)	
2 $y = x(x - 1)(3x - 3)$ Find $\frac{dy}{dx}$.	
3 A, B, C and D are points on a circle. Angle DAB = $(4x - 5)°$, angle BCD = $(5x + 32)°$ and angle ABC = $(3x)°$. (a) Work out the value of x. (b) Work out the size of angle ADC. The diagram is not drawn accurately. 	
4 Two curves have equations $y = x^2 - 3x + 6$ and $y = 2x^2 - 7x + 2$. Find the value of x at which the curves have the same gradient.	
5 A fair 6-sided dice and a spinner numbered 1 to 5 are each thrown once. The first score and the second score are recorded. (a) Work out the probability that the product is greater than 8. (b) Given that the sum is odd, work out the probability that the product is greater than 8.	

Day 25	IGCSE 10-a-day

6 PAQ is a tangent to the circle at A. B and C are points on the circle. Angle PAB = (5x − 10)°, angle ACB = (3x + 28)° and angle CAQ = 36°.
(a) Work out the value of x.
(b) Work out the size of angle BAC.
The diagram is not drawn accurately.



7 f(x) = 4x + 2 and g(x) = x^2 + 6
Solve fg(x) = gf(x)

8 f(x) = $\frac{4x - 3}{x - k}$, where k is a constant and x ≠ k.
The function f is its own inverse, so $f^{-1}(x)$ = f(x).
Find the value of k.

9 The curves y = x^2 + 5x − 2 and y = −$2x^2$ + 23x − 29 touch at one point.
Find the coordinates of this point and the equation of the common tangent.

10 Show that $\sqrt{88 + 30\sqrt{7}} = 5 + 3\sqrt{7}$