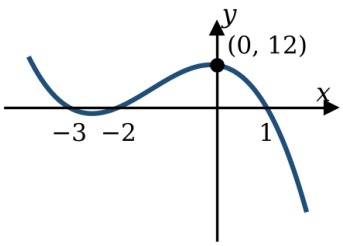
Day 75	A Level Maths: C Tier 10-a-day
1 The point P(3, −2) lies on the curve y = f(x). Write down the coordinates of the image of P on (a) y = f(x − 4) (b) y = f(x + 4)	
2 A is acute and $\sin A = \frac{3}{5}$. Find the exact values of sin 2A and cos 2A.	
3 A particle moves in a straight line. Its velocity at time t seconds is v m s^{-1}, where $v = t^2 - 4t + 1$. (a) Find its acceleration when t = 1. (b) Find the time when its acceleration is zero.	
4 Solve 4 cos x = 3 for $0 \leq x \leq 2\pi$. Give your answers to 3 significant figures.	
5 The discrete random variable X has P(X = x) = k(6 − x) for x = 1, 2, 3, 4. (a) Find the value of k. (b) Find P(X ≥ 3).	

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6 The diagram shows the curve y = f(x), where f(x) is a cubic. Find f(x) in the form k(x − a)(x − b)(x − c).



7 A car of mass 1000 kg tows a caravan of mass 500 kg on a level road with acceleration 0.25 m s^{-2}. Resistances: 200 N on the car, 200 N on the caravan. Find the driving force and the tow bar tension.

8 The line y = 3x + k is a tangent to the curve $y = x^2 - x + 2$.
Find the value of k.

9 Solve $-4\sin^2 x + 3 = 0$
for $0° \leq x \leq 360°$.

10 A stratified sample of size 14 is taken from 56 students: 40 Biology, 16 Chemistry.
How many Chemistry should be in the sample?