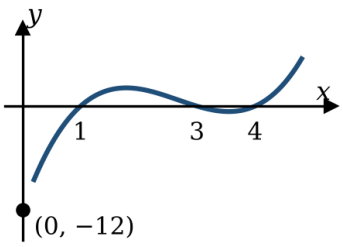
Day 283	A Level Maths: C Tier 10-a-day

1 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).



2 Find the exact value, in radians, of
(a) arctan(−1) (b) arctan(1)

3 A train travelling at 30 m s^{-1} brakes uniformly and comes to rest after travelling 150 m.
(a) Find the deceleration.
(b) Find the time taken to stop.

4 Find $\int \cos(4x + 5)\, dx$.

5 Solve $16^x = 512$.

Day 283	A Level Maths: C Tier 10-a-day
6 Each customer buys a coffee with probability 0.3. Find the probability that at least one of 4 customers buys a coffee, to 3 s.f.	
7 A trunk of mass 10 kg is pulled along rough horizontal ground at constant speed by a horizontal force of 49 N. Take g = 9.8 m s^{-2}. Find the coefficient of friction between the trunk and ground.	
8 $f(x) = \sqrt{x - 7} - 2$. State the largest possible domain and the range of f.	
9 The probability that a patient takes the drug is 0.2. If so, the probability that the patient recovers is 0.5; otherwise it is 0.3. Given that the patient recovers, find the probability that a patient takes the drug.	
10 Use $\sin\theta \approx \theta$ to estimate sin 3°, giving your answer to 3 significant figures.	