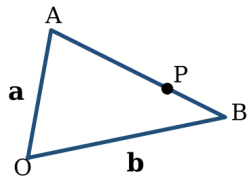
| Day 281 | A Level Maths: C Tier 10-a-day |
|---|---|
| **1** Solve $-17 \leq 3x - 5 < -2$. | |
| **2** $y = x^3 - 6x^2 + 9x + 3$.<br>Find the coordinates of the stationary points and determine their nature. | |
| **3** A particle moves in a straight line. Its velocity at time t seconds is $v = (t^2 - 4t + 3)$ m s$^{-1}$.<br>(a) Find the times when the particle is at rest.<br>(b) Find its acceleration at the first of these times. | |
| **4** X has probability density function $f(x) = \frac{3}{64}x^2$ for $0 \leq x \leq 4$, and 0 otherwise.<br>Find $P(X < 1)$. | |
| **5** A stone is projected from level ground with velocity $(8\mathbf{i} + 39.2\mathbf{j})$ m s$^{-1}$ ($\mathbf{i}$ horizontal, $\mathbf{j}$ vertically up). Take $g = 9.8$ m s$^{-2}$.<br>(a) Find the time of flight.<br>(b) Find the horizontal range. | |

**Day 281** **A Level Maths: C Tier 10-a-day**

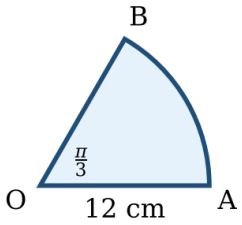
**6** The circle $(x - 3)^2 + (y + 3)^2 = 25$ passes through P(7, 0).
Find the gradient of the tangent to the circle at P.

**7** In the diagram, OA = **a**, OB = **b**, and P lies on AB with AP : PB = 2 : 1.
Find AB and AP in terms of **a** and **b**.




**8** Solve $9^x = 59049$.

**9** The diagram shows sector OAB of a circle.
Find, in terms of π, (a) the arc length AB, (b) the area of the sector.




**10** The probability that a patient takes the drug is 0.3. If so, the probability that the patient recovers is 0.7; otherwise it is 0.1.
Given that the patient recovers, find the probability that a patient takes the drug.