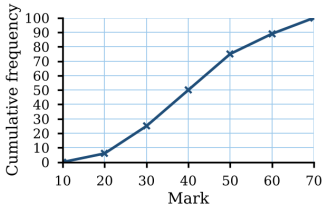
Day 338	IGCSE 10-a-day
1 Work out the gradient of the curve $y = 4x^4 + 4x^3 - 7x^2$ at the point where $x = 0$.	
2 The population of a village increased by 10% in 2023. In 2024 the population increased by a further 10%. Work out the overall percentage increase over the two years.	
3 10 painters can paint a hall in 30 days. After 2 days, 2 of the painters leave. The rest carry on working at the same rate. How many more days does it take to finish?	
4 Solve $\frac{x - 4}{4} \geq \frac{2 + 2x}{5}$	
5 Make r the subject of $P = 6r^3 + 14$	

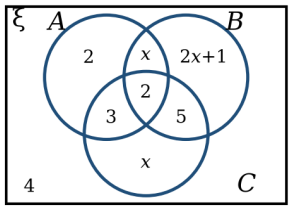
Day 338 **IGCSE 10-a-day**

6 A curve has equation $y = 2x^2 + 8x - 3$.
The gradient at the point P on the curve is 12.
Find the coordinates of P.

7 The cumulative frequency graph gives information about the marks of 100 students in a test.
(a) Find an estimate for the median and the interquartile range.
(b) Estimate how many of the 100 had a mark greater than 55.



8 The Venn diagram shows information about 41 students.
A: study Art B: study Music C: study Drama
(a) Find the value of x.
(b) Find n(A) and n(B ∪ C)′.



9 A curve has equation $y = 4x + \frac{64}{\sqrt{x}}$ for $x > 0$.
Find the coordinates of the stationary point and determine its nature.

10 A circle has equation $x^2 + y^2 = 625$.
The point P(24, 7) lies on the circle.
(a) Find the equation of the tangent to the circle at P. Give your answer in the form ax + by = c, where a, b and c are integers.
(b) The tangent meets the x-axis at the point T.
Write down the coordinates of T.