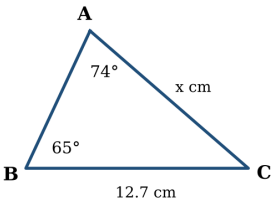
Day 136 **IGCSE 10-a-day**

1 A curve has equation $y = -2x^3 + 6x^2 - 3$.
Find the coordinates of the turning points of the curve. Use the second derivative to determine whether each is a maximum or a minimum.

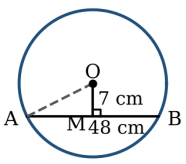
2 A is the point (1, 1) and B is the point (1, 0).
(a) Write down the vector **AB**.
(b) Find |**AB**|, giving the answer as a surd in simplest form if it is not exact.

3 The graph of $y = -x^2 - 8x + 7$ has a turning point at P.
Find the equation of the tangent to the curve at P.

4 Work out the length of AC.
Give your answer correct to 3 significant figures. (Calculator)



5 AB is a chord of a circle, centre O. M is the midpoint of AB. (Calculator)
(a) Work out the radius of the circle.
(b) Work out angle AOB, to 1 decimal place.
The diagram is not drawn accurately.



Day 136	IGCSE 10-a-day
6 The curve $y = -x^2 + 14x - 33$ crosses the x-axis at the points A and B. (a) Find the coordinates of A and B. (b) Find the coordinates of the maximum point of the curve.	
7 A curve has equation $y = x^4 - 2x^2 + 1$. Find the coordinates of the stationary points of the curve and determine the nature of each.	
8 The HCF of two numbers is 9 and their LCM is 396. One of the numbers is 99. Work out the other number.	
9 Solve the simultaneous equations $x^2 + y^2 = 5$ $y = x - 1$	
10 A population of fish starts at 800 and grows by 20% each year. After how many whole years will the population first be at least double its starting value? (Calculator)	