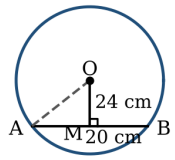
Day 281 **IGCSE 10-a-day**

1 $y = 6x^3 + 2x - \frac{7}{x^2}$

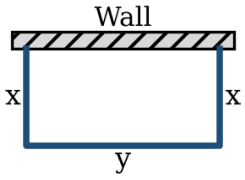
Find $\frac{dy}{dx}$.

2 Hire Shop A has a delivery charge of £4.50 plus £5 per day.
Hire Shop B has a delivery charge of £16.50 plus £4 per day.
(a) Work out the number of days for which the two costs are the same.
(b) Which is cheaper for 16 days, and by how much?

3 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.



4 A farmer uses 76 m of fencing to enclose a rectangle against a wall, as shown.
(a) Show that the area, A m^2, is $A = 76x - 2x^2$.
(b) Find the maximum area, proving it is a maximum.



5 Solve $6x^2 - 5x - 6 \leq 0$

Day 281	IGCSE 10-a-day
6 Fatima, Isla and Priya share some stickers. Fatima : Isla = 3 : 8 Isla : Priya = 6 : 4 (a) Work out the ratio Fatima : Isla : Priya. (b) They share 490 stickers altogether. How many stickers does Fatima get?	
7 Show algebraically that the product of $(4m - 1)$ and $(4m + 1)$ is always 1 less than a multiple of 16.	
8 A particle moves in a straight line. After t seconds its displacement from O is s metres, where $s = 24t^{\frac{3}{2}} - 2t^2$ $(t \geq 0)$ Find the velocity and the acceleration of the particle when $t = 4$.	
9 Show that $0.8\dot{4} = \frac{38}{45}$	
10 The area of triangle ABC is 21.9 cm^2. Angle C is acute. Work out the size of angle C. Give your answer correct to 1 decimal place. (Calculator) 