Day 182	IGCSE 10-a-day
1 A = $\begin{pmatrix} 3 & -3 \\ 5 & -2 \end{pmatrix}$ and B = $\begin{pmatrix} 5 & 3 \\ 4 & -2 \end{pmatrix}$. (a) Work out A + B. (b) Work out 2A − 2B.	
2 Write these numbers in order of size, starting with the smallest. 0.41, $\frac{1}{4}$, $\frac{13}{18}$, 85%	
3 Factorise fully $2x^3 - 32x$	
4 The price of a coat is decreased by 50% and then increased by 20%. Work out the overall percentage change. State whether it is an increase or a decrease.	
5 The line L has equation 3x + 4y = 12. L crosses the x-axis at the point A and the y-axis at the point B. (a) Find the coordinates of A and B. (b) Work out the length of AB.	

Day 182 **IGCSE 10-a-day**

6 $y = 2x^3 + 3x^2 - 12x - 3$

(a) Show that there is a stationary point at $x = -2$.

(b) By finding the gradient when $x = -\frac{5}{2}$ and when $x = -\frac{3}{2}$, decide whether it is a maximum or a minimum.

7 A sector of a circle has angle 270° and area $\frac{675}{4}\pi$ cm^2.

(a) Work out the radius of the circle.

(b) Work out the length of the arc of the sector. Give your answer to (b) in terms of π.

8 A particle moves in a straight line. After t seconds its displacement from a fixed point is s metres, where

$s = 2t^3 - 18t^2 + 61t - 4$

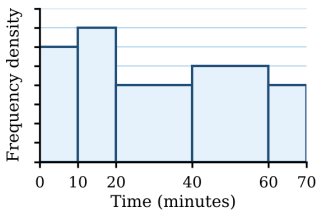
(a) Show that the particle is never at rest.

(b) Find the least speed of the particle and the time it occurs.

9 The histogram shows the times of people spent waiting at a clinic.
320 of them had a time between 20 and 40 minutes.

(a) How many had a time between 40 and 60 minutes?

(b) How many people are there in total?



10 $y = x(x + 2)^2$

Show that $\frac{dy}{dx} = (x + 2)(3x + 2)$.