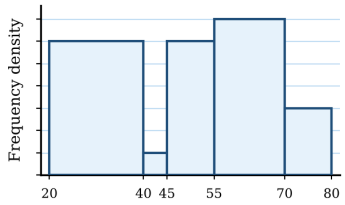
Day 355	IGCSE 10-a-day
1 Nadia changes £1100 into dollars at £1 = $1.2. Nadia spends $1030 and then changes the rest back into pounds at £1 = $1.25. How many pounds does Nadia get back?	
2 Convert the recurring decimal $0.54\dot{8}\dot{1}$ to a fraction. Give your fraction in its simplest form.	
3 A curve has equation $y = 2x^3 + 3x^2 + 1$. Find the equation of the tangent to the curve at the point where $x = 2$.	
4 $f(x) = 4x - 3$ and $g(x) = x^2 - 3x + 6$. (a) Find $f^{-1}g(x)$. (b) Work out $f^{-1}g(-1)$.	
5 A red light flashes every 6 minutes. A blue light flashes every 15 minutes. A green light flashes every 24 minutes. They all flash together at 9:00 am. (a) At what time do they next flash together?	

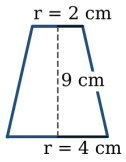
Day 355 **IGCSE 10-a-day**

6 The curve $y = ax^2 + bx + 4$ has gradient -8 when $x = 0$ and gradient -16 when $x = -1$.
Find the values of a and b.

7 The histogram shows the ages, in years, of some visitors.
The bar for 20 to 40 represents 48 visitors.
(a) Work out the frequency of the class 70 to 80.
(b) Work out the total frequency.



8 A cone is cut parallel to its base to make a smaller cone and a frustum.
The frustum has height 9 cm, top radius 2 cm and base radius 4 cm.
Work out the volume of the frustum. Give your answer in terms of π.



9 A piece of thin metal rod 34 cm long is cut into two pieces. One piece is bent to form a square of side x cm. The other piece is bent to form a rectangle whose length is twice its width.
(a) Show that the total area, A cm^2, enclosed by the two shapes is $A = x^2 + \frac{(34 - 4x)^2}{18}$.
(b) Find the value of x for which A is least, and work out this least area.

10 Prove that the sum of the squares of any two odd numbers is 2 more than a multiple of 8.