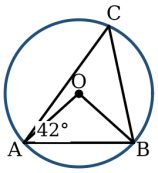
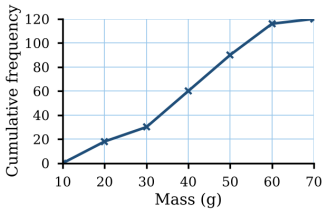
Day 163	S Tier 10-a-day
1 Write $\frac{4}{2x-3} + \frac{x-1}{x+1}$ as a single fraction. Simplify the numerator.	
2 The mean of 9 numbers is 12. A new number is added and the mean of all 10 numbers is 15.7. Work out the new number.	
3 A, B and C are points on a circle, centre O. Angle OAB = 42°. (a) Work out the size of angle AOB. (b) Work out the size of angle ACB. The diagram is not drawn accurately. 	
4 A tank is $\frac{1}{3}$ full. 16 more litres of water are added and the tank is then $\frac{3}{5}$ full. Work out the capacity of the tank.	
5 A circular arc has a chord AB of length 10 cm. The greatest distance between the chord and the arc is 1 cm. Work out the radius of the circle.	

Day 163 **S Tier 10-a-day**

6 Write $\frac{5}{3-\sqrt{6}}$ in the form $\frac{p+q\sqrt{6}}{r}$
where p, q and r are integers and r > 1,
and the fraction is in its simplest form.

7 The value of a house increases by 12% each year.
After 3 years it is worth £52,684.80.
Work out its value 3 years ago. (Calculator)

8 The cumulative frequency graph gives information about the masses of 120 apples picked from a tree.
(a) Find an estimate for the median and the interquartile range.
(b) Estimate how many of the 120 had a mass greater than 25.



9 The line $y = x + k$ is a tangent to the circle $x^2 + y^2 = 30$.
Find the possible values of k.
Give any surds in their simplest form.

10 OAB is a triangle. OA = **a** and OB = **b**.
M is on OA with OM : MA = 2 : 1. N is on OB with ON : NB = 2 : 3. AN and BM intersect at X.
(a) Find BM in terms of **a** and **b**.
(b) Find OX in terms of **a** and **b**.
The diagram is not drawn accurately.

