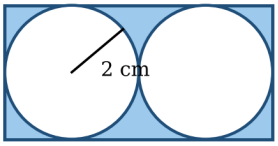
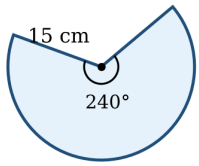
Day 205	A Tier 10-a-day
1 The value of a house is increased by 40% and then the new amount is decreased by 15%. Work out the overall percentage increase.	
2 2 identical circles of radius 2 cm fit exactly inside a rectangle. The circles touch each other and the sides of the rectangle. (Calculator) Work out the area of the shaded region. Give your answer to 3 significant figures. 	
3 Here are the first four terms of a sequence. 21, 24, 27, 30 (a) Find an expression for the nth term. (b) Is 119 a term of this sequence? You must show your working.	
4 Kiran buys a games console for £250 and sells it for £225. Work out Kiran's percentage loss.	
5 A scientist wants to estimate the number of deer in a forest. She catches 100 deer, marks each one and returns them. Later she catches a second sample of 50 deer. 5 of these are marked. Work out an estimate for the total number of deer in a forest.	

Day 205 **A Tier 10-a-day**

6 The diagram shows a sector of a circle of radius 15 cm.
Work out the area of the sector.
Give your answer in terms of π.
The diagram is not drawn accurately.



7 The table gives information about 122 measurements.
A histogram is drawn using this information.
(a) Work out the missing frequency.
(b) Work out the height of the bar for the class $10 < h \leq 15$.

Height, h (cm)	Frequency
$10 < h \leq 15$	7
$15 < h \leq 45$	66
$45 < h \leq 60$	?
$60 < h \leq 80$	40

8 Expand and simplify
$(x - 6)^2 - (x + 4)(x + 6)$

9 Rationalise the denominator of $\frac{2}{3 - \sqrt{7}}$
Give your answer in the form $a + b\sqrt{c}$ where a and b are integers.

10 A bag contains 3 red counters and 7 blue counters.
Three counters are taken at random without replacement.
Work out the probability that at least one of the three counters is blue.