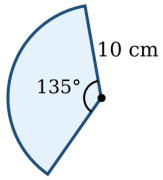
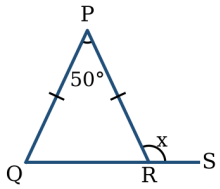
Day 112 **A Tier 10-a-day**

1 The diagram shows a sector of a circle of radius 10 cm.
Work out the area of the sector.
Give your answer in terms of π.
The diagram is not drawn accurately.



2 A straight line has equation $-5x + 2y = -15$
(a) Find the gradient of the line.
(b) Find the coordinates of the point where the line crosses the x-axis.

3 PQR is an isosceles triangle with PQ = PR.
QRS is a straight line.
Angle QPR = 50°.
Work out the size of angle x.
The diagram is not drawn accurately.



4 Simplify fully
(a) $\frac{18x^6y^2}{5x^5y^6}$
(b) $\frac{(3x^3)^2}{3x^4}$

5 Work out $(3 \times 10^8) \div (2.5 \times 10^{-4})$
Give your answer in standard form.

Day 112 **A Tier 10-a-day**

6 Here are the first five terms of a quadratic sequence.
9, 19, 31, 45, 61
(a) Find an expression for the nth term.
(b) Work out the 10th term.

7 (a) Show that $0.\dot{8}\dot{4} = \frac{28}{33}$

(b) Hence write $2.\dot{8}\dot{4}$ as a mixed number in its simplest form.

8 Jug A contains 11 litres of a mixture of red paint and white paint in the ratio 4 : 7.
Jug B contains 21 litres of a mixture of red paint and white paint in the ratio 6 : 1.
The contents of both jugs are mixed together.
Work out the ratio of red paint to white paint in the mixture. Give your answer in its simplest form.

9 Rationalise the denominator of $\frac{100}{6 + \sqrt{11}}$

Give your answer in the form $a + b\sqrt{c}$ where a and b are integers.

10 The table gives information about 135 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 $45 < h \leq 75$.

Height, h (cm)	Frequency
$10 < h \leq 30$	36
$30 < h \leq 45$	?
$45 < h \leq 75$	54
$75 < h \leq 90$	12