Day 197	S Tier 10-a-day
1 9 workers can build a wall in 12 days. After 4 days, 8 of the workers leave. The rest carry on working at the same rate. How many more days does it take to finish?	
2 Factorise $6x^2 + 11x - 35$	
3 The radius of a circle is 7 cm, correct to the nearest centimetre. Work out the lower bound of the area of the circle. Give your answer in terms of π.	
4 Simplify $\frac{2}{4+\sqrt{10}} - \frac{1}{4-\sqrt{10}}$ Give your answer with a rational denominator.	
5 Here are the first five terms of a quadratic sequence. 15, 29, 51, 81, 119 Find an expression for the nth term.	

Day 197 **S Tier 10-a-day**

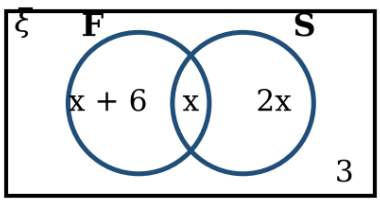
6 Ravi invests £6,500 in an account paying compound interest.
The interest rate is the same percentage each year.
After 3 years the account holds £8,651.50.
Work out the annual percentage interest rate.

7 The table shows information about 122 employees.
(a) An employee who travels to work by bus is chosen at random. Work out the probability that this employee is a man.
(b) Two of the 122 employees are chosen at random. Work out the probability that both are men.

	Bus	Car	Walk
Men	22	30	12
Women	15	21	22

8 Solve $x^4 - 53x^2 + 196 = 0$

9 The Venn diagram shows how many of 33 students study French (F) or Spanish (S).
(a) Work out the value of x.
(b) A student is chosen at random from those who study Spanish. Work out the probability that this student also studies French.



10 OA = **a** and OB = **b**.
OP = $-2\mathbf{a} - 2\mathbf{b}$, OQ = $4\mathbf{a}$ and OR = $16\mathbf{a} + 4\mathbf{b}$.
(a) Show that P, Q and R lie on a straight line.
(b) Work out the ratio PQ : QR in its simplest form.