Day 337 **S Tier 10-a-day**

1 The table shows the number of students in each of four groups.
(a) A stratified sample of 27 is taken. Work out how many come from Year 10.
(b) A different stratified sample has 6 from Year 7. Work out the size of this sample.

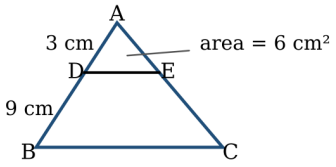
	Year 7	Year 8	Year 9	Year 10
Number	75	275	250	75

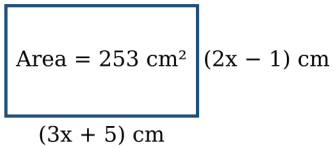
2 Write $\sqrt{108} - \sqrt{12} + \sqrt{48}$ in the form $a\sqrt{3}$ where a is an integer.

3 The mean of 11 numbers is 53.
A new number is added and the mean of all 12 numbers is 49.75.
Work out the new number.

4 Make u the subject of $v = \frac{3u + 2}{u - 4}$

5 In the diagram, DE is parallel to BC. AD = 3 cm, DB = 9 cm and the area of triangle ADE is 6 cm^2.
Work out the area of the trapezium DBCE.
The diagram is not drawn accurately.



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6 A and B are the points $(-1, 1)$ and $(-7, -5)$. AB is a diameter of a circle. Find an equation of the circle.	
7 The HCF of two numbers is 3 and their LCM is 180. The smaller number is 15. Work out the larger number.	
8 The diagram shows a rectangle of length $(3x + 5)$ cm, width $(2x - 1)$ cm and area 253 cm^2. (a) Show that $6x^2 + 7x - 258 = 0$. (b) Work out the perimeter of the rectangle. 	
9 Leila invested £10,500 in a savings account for 2 years. Compound interest was paid at a fixed rate per year. At the end of the 2 years the account held £12,247.20. Work out the annual rate of interest. (Calculator)	
10 The price of a ticket is decreased by x%. The new price is then increased by x%. The final price is 25% less than the original price. Work out the value of x.	