Day 52 **IGCSE 10-a-day**

1 Solve $x^2 \geq 121$

2 The table shows the number of students in each of four groups.
(a) A stratified sample of 33 is taken. Work out how many come from Year 8.
(b) A different stratified sample has 21 from Year 7. Work out the size of this sample.

	Year 7	Year 8	Year 9	Year 10
Number	175	175	300	175

3 A particle P moves in a straight line. After t seconds, its displacement from a fixed point O is s metres, where
$s = t^3 - 12t^2 + 45t + 2$ $(t \geq 0)$
Find the times when P is at rest.

4 Solve the simultaneous equations
$-x - y = 9$
$3x - 5y = 13$

5 $y = x(x - 1)(3x - 3)$
Work out the gradient of the curve at the point where $x = -2$.

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6 The table shows information about 113 employees.
(a) An employee who walks to work is chosen at random. Work out the probability that this employee is a man.
(b) Two of the 113 employees are chosen at random. Work out the probability that both are men.

	Bus	Car	Walk
Men	27	30	7
Women	28	13	8

7 A curve has equation $y = ax^2 + \frac{b}{x}$, where a and b are constants.
The point (1, 1) lies on the curve and the gradient of the curve at this point is 5.
Find the values of a and b.

8 The price of a ticket is increased by x%.
The new price is then decreased by x%.
The final price is 36% less than the original price.
Work out the value of x.

9 £8,000 is invested for 3 years at r% per year compound interest.
At the end of 3 years the investment is worth £10,077.70.
Work out the value of r. (Calculator)

10 ABC is a right-angled triangle with sides (x − 1) cm, (x) cm and (x + 1) cm. The longest side is (x + 1) cm.
(a) Find the value of x.
(b) Work out the area of the triangle.
The diagram is not drawn accurately.

