Day 210 **IGCSE 10-a-day**

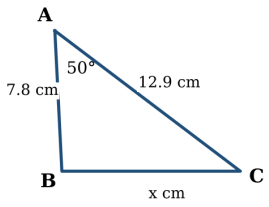
1 The table shows the number of students in each of four groups.
(a) A stratified sample of 28 is taken. Work out how many come from Year 8.
(b) A different stratified sample has 24 from Year 7. Work out the size of this sample.

	Year 7	Year 8	Year 9	Year 10
Number	160	100	220	80

2 Solve $\frac{x-4}{2} + \frac{x-6}{6} = -7$

3 A particle moves in a straight line. Its velocity, v m/s, at time t seconds is given by
$v = 4t - t^2$ for $0 \leq t \leq 4$
Find the time at which the speed of the particle is greatest, and this greatest speed.

4 Work out the length of BC.
Give your answer correct to 3 significant figures. (Calculator)

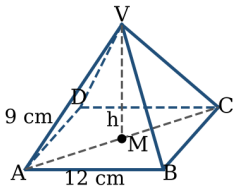


5 In a bag, the ratio of the number of red counters to the number of blue counters is 2 : 3.
Then 6 red counters are removed and 10 blue counters are removed.
The ratio is now 8 : 11.
How many red counters were there at the start?

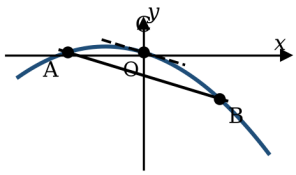
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6 Tom invests £15,000 for 5 years at 1.5% per year simple interest.
Lena invests £15,000 for 5 years at 1.5% per year compound interest.
Work out how much more interest Lena earns than Tom.
Give your answer to the nearest penny.
(Calculator)

7 VABCD is a pyramid on a square base. V is directly above the centre M.
(a) Work out the height VM of the pyramid.
(b) Work out the volume of the pyramid.
The diagram is not drawn accurately.



8 The diagram shows part of the curve $y = -2x^2 - 4x + 1$. A and B are the points on the curve with x coordinates -2 and 2.
C is the point on the curve between A and B at which the tangent is parallel to AB. Find the coordinates of C.



9 The nth term of a sequence is $3n^2 + 6n + 5$.
(a) Show that the difference between the $(n + 1)$th term and the nth term is $6n + 9$.
(b) Two consecutive terms of the sequence differ by 129. Find the value of n for the first of these two terms.

10 The curve $y = -x^3 + 12x + k$, where k is a constant, has the x-axis as a tangent.
Find the two possible values of k.