Day 256 **S Tier 10-a-day**

1 The interior angles of a pentagon are
$x°$, $(2x)°$, $(x + 10)°$, $(x - 15)°$, $(x + 35)°$
(a) Work out the value of x.
(b) Work out the size of the largest angle.

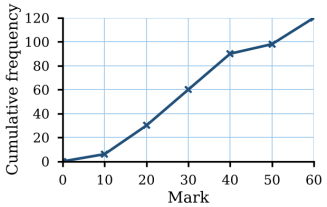
2 The table shows the number of members in each of four groups.
(a) A stratified sample of 32 is taken. Work out how many come from Group C.
(b) A different stratified sample has 33 from Group B. Work out the size of this sample.

	Group A	Group B	Group C	Group D
Number	180	220	100	140

3 Use the iteration formula $x_{n+1} = \sqrt[3]{3x_n + 2}$ with $x_0 = 4$ (Calculator)
to work out x_1, x_2 and x_3.
Give each answer correct to 3 decimal places.

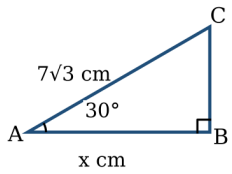
4 The point P(−5, −6) is reflected in the x-axis.
The image is then reflected in the line y = x.
(a) Write down the coordinates of the final image of P.
(b) Describe fully the single transformation that is equivalent to these two transformations.

5 The cumulative frequency graph gives information about the marks of 120 students in a test.
(a) Find an estimate for the median and the interquartile range.
(b) Estimate how many of the 120 had a mark greater than 45.



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6 ABC is a right-angled triangle.
Work out the exact value of x. Give your answer in its simplest form.
The diagram is not drawn accurately.



7 Solve the simultaneous equations
$y = x^2 - x - 5$
$y = -x + 4$

8 Omar puts £1,000 into a savings account.
The account pays 6% compound interest each year.
After how many whole years will there first be more than £1,350 in the account? (Calculator)

9 Make t the subject of $T(t + 4) = t - T$

10 A rectangle has area $(6 + \sqrt{2})$ cm^2 and length $(2 + \sqrt{2})$ cm.
Find the width of the rectangle.
Give your answer in the form $a + b\sqrt{2}$