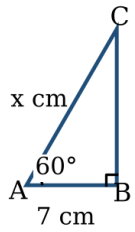
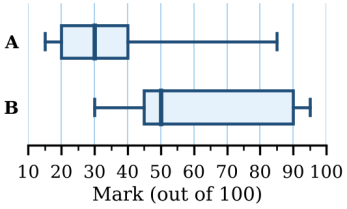
Day 217 **S Tier 10-a-day**

1 Solve $\frac{x+7}{3} + \frac{x+3}{8} = 5$

2 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.



3 The box plots show the test marks of the students in two classes, A and B.
(a) Work out the interquartile range for each.
(b) Compare the distributions of A and B.

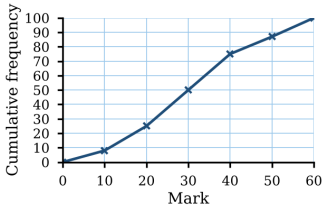


4 A rectangle has area $(22 + 10\sqrt{5})$ cm^2 and length $(4 + 2\sqrt{5})$ cm.
Find the width of the rectangle.
Give your answer in the form $a + b\sqrt{5}$

5 A runner covers 250 metres, correct to the nearest 50 metres, in a time of 27.2 seconds, correct to 1 decimal place. (Calculator)
Work out the upper bound of the runner's average speed in metres per second. Give your answer correct to 3 significant figures.

Day 217 **S Tier 10-a-day**

6 The cumulative frequency graph gives information about the marks of 100 students in a test.
(a) Find an estimate for the median and the interquartile range.
(b) Estimate how many of the 100 had a mark greater than 45.



7 Solve the simultaneous equations
$y = x^2 + x - 1$
$y = -2x + 3$

8 $f(x) = \frac{-5x - 1}{x + 5}$ where $x \neq -5$
(a) Show that $ff(x) = x$.
(b) Write down $f^{-1}(x)$.

9 ABCD is a rectangle with AB = 10 cm and AD = 14 cm.
A point P inside the rectangle is such that AP ≤ 8 cm and P is nearer to AB than to AD.
Work out the area of the region in which P can lie. Give your answer in terms of π.

10 Simplify $\frac{3}{4 + \sqrt{10}} - \frac{1}{4 - \sqrt{10}}$
Give your answer with a rational denominator.