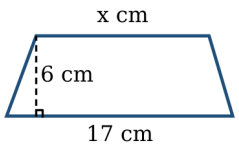
Day 251 **A Tier 10-a-day**

1 Here are the first four terms of a sequence.
8, 2, −4, −10
(a) Find an expression for the nth term.
(b) Find the first term in the sequence that is less than −150.

2 Work out $3\frac{2}{7} + 2\frac{2}{3}$
Give your answer as a mixed number in its simplest form.

3 $x_{n+1} = \frac{8}{(x_n + 3)}$
$x_0 = 3$
Work out the values of x_1, x_2 and x_3.
Give your answers correct to 3 decimal places.
(Calculator)

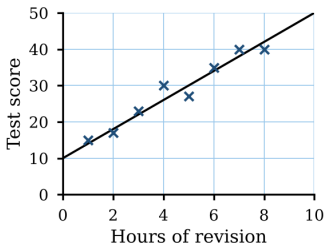
4 The area of this trapezium is 90 cm^2.
Work out the value of x.
The diagram is not drawn accurately.



5 (a) Solve $-17 < 3x - 5 \leq -2$
(b) Write down all the integer values of x that satisfy this inequality.

Day 251 **A Tier 10-a-day**

6 The scatter graph shows the hours of revision and the test scores of some students.
A line of best fit is drawn.
(a) Describe the correlation.
(b) Estimate the test score of a student who revised for 5 hours.



7 Triangle LMN has vertices L(4, 0), M(4, 2), N(−4, 4).
The triangle is enlarged with scale factor $\frac{1}{2}$ and centre (0, 2).
Write down the coordinates of the vertices of the image.

8 (a) Show that $0.\dot{5}\dot{2} = \frac{52}{99}$
(b) Hence write $5.\dot{5}\dot{2}$ as a mixed number in its simplest form.

9 y is inversely proportional to x.
When x = 10, y = 8.
(a) Find a formula for y in terms of x.
(b) Work out the positive value of x when y = 10.

10 The price of a ticket is increased by 50% and then the new amount is decreased by 40%.
Work out the overall percentage decrease.