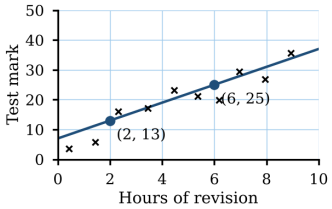
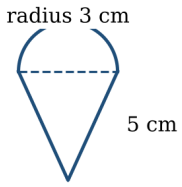
Day 327	S Tier 10-a-day
1 Work out $(1.9 \times 10^{-4}) \times (6.4 \times 10^{-2})$ Give your answer in standard form.	
2 The mean of 8 numbers is 73. One number is removed and the mean of the remaining 7 numbers is 75. Work out the number that was removed.	
3 Work out the exact value of $(\cos 60°)^2 + \cos 45°$ Give your answer in its simplest form, as a fraction or surd. Do not use a calculator.	
4 Solve $x^2 - 12x + 3 = 0$ Give your answers in the form $a \pm \sqrt{b}$	
5 $\mathbf{a} = \begin{pmatrix} -1 \\ -1 \end{pmatrix}$ and $\mathbf{b} = \begin{pmatrix} -4 \\ -5 \end{pmatrix}$ Work out the exact length of the vector $\mathbf{a} + \mathbf{b}$. Give your answer as a simplified surd.	

Day 327 **S Tier 10-a-day**

6 The scatter graph shows hours of revision (x) and test mark (y).
The equation of the line of best fit is $y = 3x + 7$.
(a) Estimate y when x = 9.
(b) Explain why an estimate of y when x = 25 may be unreliable.



7 A solid is made from a cone of height 5 cm and a hemisphere. Both have radius 3 cm.
Work out the total volume of the solid. Give your answer in terms of π.



8 The price of a watch is increased by 20%.
Later the new price is reduced by 25% in a sale.
The sale price is £72.
Work out the price before the increase.
(Calculator)

9 Without using a calculator, work out $0.\dot{2}\dot{4} + 0.0\dot{6}$
Give your answer as a fraction in its simplest form.

10 The nth term of a sequence is $2n^2 + 4n + 2$.
(a) Work out the 12th term.
(b) Is 128 a term of the sequence? You must show your working.