**Day 209** **A Tier 10-a-day**

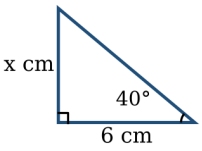
**1** Work out the value of $4x^2 + 5x - 3$ when $x = -2$

**2** Here are the results for 19 matches.
(a) Find the median.
(b) Work out the range.

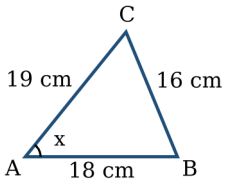
| Goals scored | 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| Frequency | 2 | 1 | 3 | 4 | 9 |

**3** Here are the first four terms of a sequence.
6, 4, 2, 0
(a) Find an expression for the nth term.
(b) Is $-22$ a term of this sequence? You must show your working.

**4** Work out the value of x. (Calculator)
Give your answer to 3 significant figures.
The diagram is not drawn accurately.




**5** A culture starts with 2500 bacteria. (Calculator)
The number of bacteria increases by 10% every hour.
Work out the number of bacteria after 2 hours.
Give your answer to the nearest whole number.

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|---|---|
| **6** Work out $(2.5 \times 10^2) - (8.5 \times 10^1)$<br>Give your answer in standard form. | |
| **7** The graph of y = f(x) has a minimum point at (4, 0).<br>Write down the coordinates of the turning point of the graph of<br>(a) y = f(x) + 2<br>(b) y = f(−x) | |
| **8** Work out the size of angle x. (Calculator)<br>Give your answer to 1 decimal place.<br>The diagram is not drawn accurately.<br> | |
| **9** A bag contains 6 red counters and 2 blue counters.<br>Three counters are taken at random without replacement.<br>Work out the probability that at least one of the three counters is blue. | |
| **10** Mo invests £11,000 in a savings account. (Calculator)<br>Compound interest is paid at a fixed rate each year.<br>After 2 years the investment is worth £12,830.40.<br>Work out the annual rate of interest. | |