Day 219 **A Tier 10-a-day**

1 (a) A flight takes off at 0915. The journey takes 1 hours 22 minutes. Work out the time it ends.
(b) Change 3.1 hours into hours and minutes.

2 Solve $3x^2 + x - 2 = 0$

3 The table shows the probabilities of the outcomes of a biased spinner.
(a) Work out the value of p.
(b) The spinner is spun 800 times. Estimate the number of times it lands on 3.

Score	1	2	3	4
Probability	0.25	p	2p	0.45

4 $A = 2^4 \times 3 \times 7^3$
$B = 2^3 \times 7^4$
Find the highest common factor (HCF) and the lowest common multiple (LCM) of A and B.
Give your answers as products of prime factors.

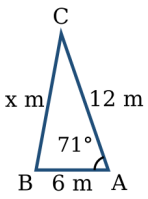
5 Change 1500 cm^3 to litres.

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6 (a) Write $x^2 + 6x + 5$ in the form $(x + a)^2 + b$
(b) Write down the coordinates of the turning point of the curve $y = x^2 + 6x + 5$

7 Zara runs around a track in 100 seconds.
Tom runs around the same track in 60 seconds.
They start together at the start line and keep running.
How many laps will each have run when they are next together at the start line?

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



9 Expand and simplify
$(x - 5)(x + 2)(x - 1)$

10 OAB is a triangle. $\overrightarrow{OA} = \mathbf{a}$ and $\overrightarrow{OB} = \mathbf{b}$.
P is the point on AB such that AP : PB = 3 : 4.
Find $\overrightarrow{OP}$ in terms of $\mathbf{a}$ and $\mathbf{b}$.

