Day 340 **IGCSE 10-a-day**

1 A flight leaves London at 19:55 (London time).
It takes 11 hours 30 minutes.
When it is 12:00 in London it is 17:00 in Delhi.
At what time, in Delhi time, does the flight land?
Say if it is on a different day.

2 The table shows the number of members in each of four groups.
(a) A stratified sample of 23 is taken. Work out how many come from Group D.
(b) A different stratified sample has 15 from Group D. Work out the size of this sample.

	Group A	Group B	Group C	Group D
Number	60	40	80	50

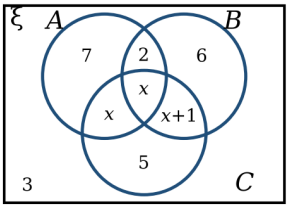
3 F is directly proportional to s.
When s = 10, F = 150.
(a) Find a formula for F in terms of s.
(b) Find the value of s when F = 75.

4 Solve the simultaneous equations
$2x + 5y = 26$
$4x - 3y = -26$

5 $f(x) = x^3 - 12x - 2$ for $-3 \leq x \leq 3$.
Find the greatest value and the least value of f(x) on this interval.

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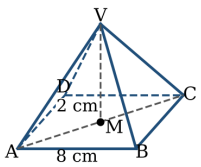
6 The Venn diagram shows information about 39 pupils.
A: play football B: play netball C: play rugby
(a) Find the value of x.
(b) Find n(A) and n(B ∪ C)′.



7 A cylinder has radius r cm and fixed height 10 cm. Its volume is $V = 10\pi r^2$ cm³.
(a) Find $\frac{dV}{dr}$ when r = 8.
(b) Find the value of r when $\frac{dV}{dr} = 160\pi$.

8 Solve the simultaneous equations
$x^2 + y^2 = 65$
$x + y = -11$

9 VABCD is a pyramid on a square base. V is directly above the centre M. (Calculator)
(a) Work out AC as a simplified surd.
(b) Work out the angle between VA and the base, to 1 d.p.
The diagram is not drawn accurately.



10 The curve C has equation $y = -2x^2 + 3x - 5$.
The points A and B on C have x coordinates −2 and 0.
The tangents to C at A and at B meet at the point T. Find the coordinates of T.