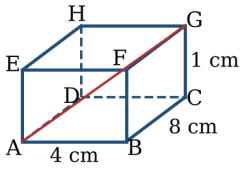
Day 22	S Tier 10-a-day

1 The ratio of juniors to seniors in a school is 1 : 4.
65% of the juniors and 70% of the seniors play a sport.
What percentage of all of these students play a sport?

2 The diagram shows a cuboid ABCDEFGH.
(Calculator)
(a) Work out the length of the diagonal AG.
(b) Work out the angle between AG and the base ABCD, to 1 decimal place.
The diagram is not drawn accurately.



3 (a) Solve $-2 - 3x \geq 10$
(b) n is an integer. Write down all the values of n that satisfy
$9 \leq 2n + 5 \leq 19$

4 A sector of a circle has radius 15 cm and angle 135°.
(a) Work out the length of the arc of the sector.
(b) Work out the area of the sector. Give each answer in terms of π.

5 a = 3.3, b = 2 and c = 4.5,
all correct to 1 decimal place.
Work out the upper bound of $\frac{a + b}{c}$.
Give your answer correct to 3 significant figures.

Day 22	S Tier 10-a-day
6 Solve the simultaneous equations $6x + 3y = 3$ $-5x + 6y = 23$	
7 Write $20^3 \times 30^4$ as a product of powers of prime numbers.	
8 The price of a games console is increased by 40%. Later the new price is reduced by 40% in a sale. The sale price is £403.20. Work out the price before the increase. (Calculator)	
9 The nth term of a sequence is $n^2 + 8n - 3$. (a) Work out the 12th term. (b) Is 382 a term of the sequence? You must show your working.	
10 Show that $\sqrt{88 + 30\sqrt{7}} = 5 + 3\sqrt{7}$	