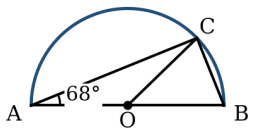
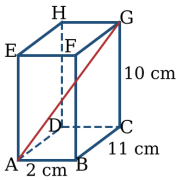
Day 23	S Tier 10-a-day
1 Given that $(a + \sqrt{10})(b + \sqrt{10}) = 40 + 11\sqrt{10}$, where a and b are positive integers with a < b, find the values of a and b.	
2 The mean of 5 numbers is 155. One number is removed and the mean of the remaining 4 numbers is 189.75. Work out the number that was removed.	
3 A flight leaves London at 08:20 (London time). It takes 11 hours 45 minutes. When it is 12:00 in London it is 21:00 in Sydney. At what time, in Sydney time, does the flight land? Say if it is on a different day.	
4 AB is a diameter of a circle, centre O. C is a point on the circle. Angle BAC = 68°. (a) Work out the size of angle ACB. (b) Work out the size of angle COB. The diagram is not drawn accurately. 	
5 Here are the first five terms of a quadratic sequence. −2, −2, 0, 4, 10 Find an expression for the nth term.	

Day 23	S Tier 10-a-day
6 Evan invests £9,500. The rates of interest for the next 3 years are 4%, 2% and 2%. Compound interest is paid. Work out the value of the investment after 3 years. Give your answer to the nearest penny. (Calculator)	
7 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. 	
8 Lena invests £17,500 in an account paying compound interest. The interest rate is the same percentage each year. After 3 years the account holds £30,240. Work out the annual percentage interest rate.	
9 Solve $\frac{3}{x+4} - \frac{2}{x-3} = \frac{3}{2}$	
10 Sofia and Carlos share some money in the ratio 9 : 1. Sofia gives Carlos £51. The ratio of their money is now 1 : 2. How much money do they have altogether?	