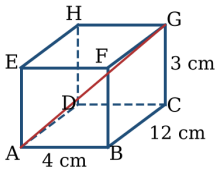
Day 5	S Tier 10-a-day

1 Work out the value of $\frac{2p - q}{r}$
when $p = 4$, $q = -1$ and $r = -4$.

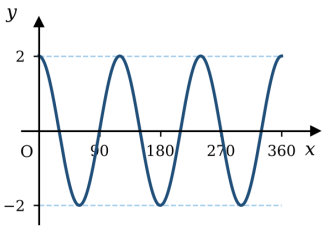
2 The diagram shows a cuboid ABCDEFGH.
(Calculator)
(a) Work out the length of the diagonal AG.
(b) Work out the angle between AG and the base ABCD, to 1 decimal place.
The diagram is not drawn accurately.



3 A rectangle has area $(19 + 11\sqrt{2})$ cm^2 and length $(3 + \sqrt{2})$ cm.
Find the width of the rectangle.
Give your answer in the form $a + b\sqrt{2}$

4 A metal pipe is a hollow cylinder with outer radius 3 cm and inner radius 2.5 cm.
(Calculator)
The density of the metal is 7.3 g/cm^3.
The mass of the pipe is 3.78 kg.
Work out the length of the pipe. Give your answer in centimetres correct to 3 significant figures.

5 Hassan changes £800 into euros at £1 = €1.15.
Hassan spends €490 and then changes the rest back into pounds at £1 = €1.6.
How many pounds does Hassan get back?

Day 5	S Tier 10-a-day
6 Without using a calculator, work out $0.\dot{5}\dot{7} + 0.6\dot{0}\dot{2}$ Give your answer as a fraction in its simplest form.	
7 The diagram shows the graph of y = a cos bx, where a and b are positive integers. (a) Write down the value of a and the value of b. (b) Work out the value of y when x = 210°. 	
8 (a) Show that the equation $x^3 + 3x - 34 = 0$ has a solution between x = 2 and x = 3. (b) Show that the equation can be rearranged to give $x = \sqrt[3]{34 - 3x}$	
9 The HCF of two numbers is 4 and their LCM is 132. One of the numbers is 44. Work out the other number.	
10 Machine A makes 30% of the bolts in a factory. Machine B makes the rest. 60% of the bolts from machine A are faulty. 10% of the bolts from machine B are faulty. (a) Work out the probability that a bolt chosen at random is faulty. (b) A faulty bolt is found. Work out the probability that it was made by machine A.	