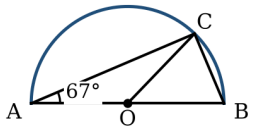
Day 316	S Tier 10-a-day

1 A spinner numbered 1 to 4 and a spinner numbered 1 to 5 are each thrown once. The first score and the second score are recorded.
(a) Work out the probability that the two numbers are different.
(b) Given that at least one number is 3, work out the probability that the two numbers are different.

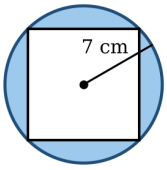
2 AB is a diameter of a circle, centre O. C is a point on the circle. Angle BAC = 67°.
(a) Work out the size of angle ACB.
(b) Work out the size of angle COB.
The diagram is not drawn accurately.



3 Work out $3\frac{1}{5} \times 1\frac{7}{8} - 4\frac{3}{5}$
Give your answer as a mixed number or a fraction in its simplest form.

4 A biased four-sided dice lands on one of four outcomes with these probabilities.
1: x; 2: 0.1; 3: x + 0.15; 4: 0.55
(a) Work out the value of x.
(b) The biased four-sided dice is used 200 times. Work out an estimate for the number of times it lands on 1.

5 The nth term of a sequence is $n^2 + 6n + 3$.
(a) Work out the 12th term.
(b) Is 285 a term of the sequence? You must show your working.

Day 316	S Tier 10-a-day
6 A price is increased by 900%. By what percentage must the new value be decreased to get back to the original value?	
7 The diagram shows a square inside a circle of radius 7 cm. The four vertices of the square lie on the circle. Work out the area of the shaded region. Give your answer in terms of π. 	
8 Solve $\frac{3}{x+3} - \frac{6}{x+2} = \frac{1}{2}$	
9 Show that $2^{n+2} + 2^n$ is always a multiple of 5.	
10 The line $y = -2x + k$ is a tangent to the curve $y = 2x^2 - 3x - 2$. Find the value of k.	