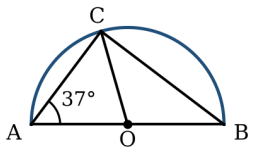
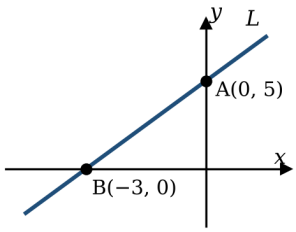
Day 181 **S Tier 10-a-day**

1 AB is a diameter of a circle, centre O. C is a point on the circle. Angle BAC = 37°.
(a) Work out the size of angle ACB.
(b) Work out the size of angle COB.
The diagram is not drawn accurately.



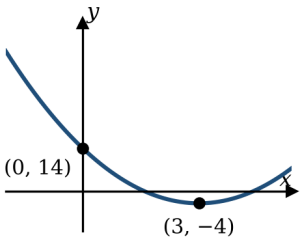
2 Given that $\sqrt{216} - \sqrt{24} = \sqrt{n}$,
find the value of n.

3 The diagram shows the straight line L, which passes through the points A and B.
The line M is perpendicular to L and passes through B.
Find the equation of M in the form y = mx + c.



4 Two tins are mathematically similar.
The heights of the tins are 6 cm and 15 cm.
The smaller one has volume 80 cm^3.
Work out the volume of the larger one.

5 Factorise $4x^2 + 16x + 7$

Day 181	S Tier 10-a-day
6 F is directly proportional to the square of m and inversely proportional to d. When m = 3 and d = 6, F = 36. Work out the value of F when m = 6 and d = 2.	
7 The diagram shows a sketch of a quadratic curve with a turning point at (3, −4). The curve crosses the y-axis at (0, 14). Find an equation of the curve. Give your answer in the form $y = ax^2 + bx + c$. 	
8 A train travels at a constant speed of 90 km/h. It takes 20 seconds to go completely through a tunnel which is 300 m long. Work out the length of the train, in metres.	
9 Write $\frac{5+\sqrt{10}}{4-\sqrt{10}}$ in the form $p + q\sqrt{10}$ where p and q are rational numbers.	
10 An alloy contains 219 g of tin and 27 g of aluminium. The density of tin is 7.3 g/cm^3. The density of aluminium is 2.7 g/cm^3. Work out the density of the alloy.	