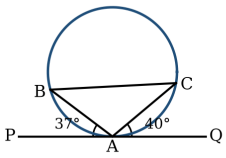
Day 141 **S Tier 10-a-day**

1 Each interior angle of a regular polygon is 174°.
Work out the number of sides of the polygon.

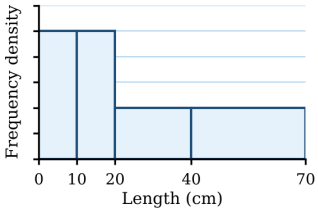
2 Write $8^5 \times 25^4$ as a product of powers of prime numbers.

3 $f(x) = -3x + 1$ and $g(x) = x^2$
Solve $fg(x) = gf(x)$

4 PAQ is a tangent to the circle at A. B and C are points on the circle. Angle PAB = 37° and angle CAQ = 40°.
(a) Work out the size of angle ABC.
(b) Work out the size of angle ACB.
The diagram is not drawn accurately.



5 The histogram shows the lengths of leaves collected from a tree.
250 of them had a length between 0 and 10 cm.
(a) How many had a length between 10 and 20 cm?
(b) How many leaves are there in total?

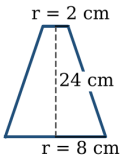


Day 141	S Tier 10-a-day

6 A square has sides of length $(2 + \sqrt{2})$ cm.
Work out the area of the square.
Give your answer in the form $a + b\sqrt{2}$

7 y is inversely proportional to x.
When x = 8, y = 1.
(a) Find a formula for y in terms of x.
(b) Find the value of x when y = 4.

8 A cone is cut parallel to its base to make a smaller cone and a frustum.
The frustum has height 24 cm, top radius 2 cm and base radius 8 cm.
Work out the volume of the frustum. Give your answer in terms of π.



9 Show that $\sqrt{7 + 4\sqrt{3}} = 2 + \sqrt{3}$

10 In a population of 20,000 people, 5% have a certain disease.
A test gives a positive result for 95% of people who have the disease and for 10% of people who do not.
A person is chosen at random and tests positive.
Work out the probability that they have the disease.