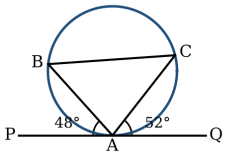
Day 258	S Tier 10-a-day

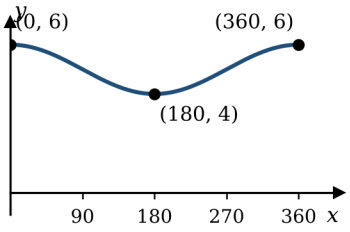
1 The sum of the interior angles of a polygon is 3420°.
Work out the number of sides of the polygon.

2 Factorise $12x^2 + 19x + 5$

3 PAQ is a tangent to the circle at A. B and C are points on the circle. Angle PAB = 48° and angle CAQ = 52°.
(a) Work out the size of angle ABC.
(b) Work out the size of angle ACB.
The diagram is not drawn accurately.



4 The diagram shows the graph of y = a cos x° + c for 0 ≤ x ≤ 360.
Some points on the graph are labelled.
Find the value of a and the value of c.



5 In a fruit box, the ratio of the number of apples to the number of pears is 5 : 2.
Then 19 apples are removed and 20 more pears are added.
The ratio is now 6 : 7.
How many apples were there at the start?

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6 Work out $(9.2 \times 10^5) \times (5.2 \times 10^3)$ Give your answer in standard form.	
7 Noah sets off at 9:00 and cycles at 24 km/h along a path. Sofia sets off from the same place at 9:15 and cycles at 30 km/h along the same path. At what time does Sofia catch up with Noah?	
8 Work out the exact value of cos 45° ÷ tan 30° Give your answer in its simplest form, as a fraction or surd. Do not use a calculator.	
9 Make x the subject of $y(x + 6) = x - y$	
10 Given that $(a + \sqrt{11})^2 = 12 + 2\sqrt{11}$, where a is a positive integer, find the value of a.	