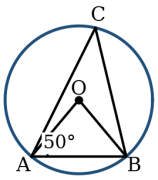
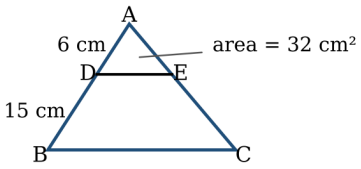
| Day 76 | S Tier 10-a-day |
|---|---|
| **1** Oscar sets off at 10:00 and cycles at 10 km/h along a path.<br>Carlos sets off from the same place at 11:00 and cycles at 34 km/h along the same path.<br>At what time does Carlos catch up with Oscar? | |
| **2** A, B and C are points on a circle, centre O.<br>Angle OAB = 50°.<br>(a) Work out the size of angle AOB.<br>(b) Work out the size of angle ACB.<br>The diagram is not drawn accurately.<br> | |
| **3** Write $\sqrt{18} + \sqrt{32} + \sqrt{2}$ in the form $a\sqrt{2}$ where a is an integer. | |
| **4** Solve $x^2 \leq 25$ | |
| **5** The price of a laptop is increased by 60%.<br>The new amount is then decreased by 25%.<br>Work out the overall percentage change. | |

| Day 76 | S Tier 10-a-day |
|---|---|
| **6** In the diagram, DE is parallel to BC. AD = 6 cm, DB = 15 cm and the area of triangle ADE is 32 $cm^2$.<br>Work out the area of the trapezium DBCE.<br>The diagram is not drawn accurately.<br> | |
| **7** Write $24^2 \times 20^3$ as a product of powers of prime numbers. | |
| **8** OA = **a** and OB = **b**.<br>OP = **a** + 3**b**, OQ = −7**a** + 13**b** and OR = −23**a** + 33**b**.<br>(a) Show that P, Q and R lie on a straight line.<br>(b) Work out the ratio PQ : QR in its simplest form. | |
| **9** Find the smallest positive integer k such that 40 × k is a square number. | |
| **10** The line y = 4x + k is a tangent to the curve y = $x^2$ − 4x + 4.<br>Find the value of k. | |