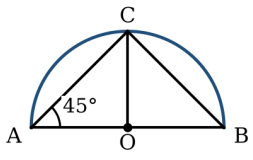
| Day 183 | S Tier 10-a-day |
|---|---|
| **1** Tariq and Callum play a match. The first to win 2 table tennis games wins the match.<br>The probability that Tariq wins any one of the table tennis games is $\frac{3}{5}$.<br>Work out the probability that Tariq wins the match. | |
| **2** Work out $(9.3 \times 10^{-3}) \times (1.5 \times 10^{1})$<br>Give your answer in standard form. | |
| **3** Zip Taxis has a fixed charge of 50p plus £5 per mile.<br>Go Cabs has a fixed charge of £3.50 plus £4.50 per mile.<br>(a) Work out the number of miles for which the two costs are the same.<br>(b) Which is cheaper for 12 miles, and by how much? | |
| **4** AB is a diameter of a circle, centre O. C is a point on the circle. Angle BAC = 45°.<br>(a) Work out the size of angle ACB.<br>(b) Work out the size of angle COB.<br>The diagram is not drawn accurately.<br> | |
| **5** F is inversely proportional to d.<br>When d = 4, F = 1.<br>(a) Find a formula for F in terms of d.<br>(b) Find the value of F when d = 2. | |

**Day 183** **S Tier 10-a-day**

**6** In a group of visitors, 75% are adults and the rest are children.
60% of the adults and 50% of the children buy a souvenir.
What percentage of all the visitors buy a souvenir?

**7** The table shows information about 95 employees.
(a) An employee who walks to work is chosen at random. Work out the probability that this employee is a man.
(b) Two of the 95 employees are chosen at random. Work out the probability that both are men.

| | Bus | Car | Walk |
|---|---|---|---|
| Men | 14 | 11 | 25 |
| Women | 5 | 27 | 13 |

**8** The table gives information about the times of some people.
Work out an estimate for the mean time.
Give your answer correct to 1 decimal place.
(Calculator)

| Time, t (minutes) | Frequency density |
|---|---|
| $10 < t \leq 15$ | 1.2 |
| $15 < t \leq 25$ | 0.7 |
| $25 < t \leq 40$ | 1 |
| $40 < t \leq 60$ | 0.6 |

**9** $f(x) = -x + 5$ and $g(x) = x^2 - 4$
Solve $fg(x) = gf(x)$

**10** A sector of a circle has radius 12 cm and angle 120°.
The sector is made into a cone by joining the two straight edges together.
(a) Work out the radius of the base of the cone.
(b) Work out the exact volume of the cone.
Give your answer in terms of $\pi$, as a surd if necessary.