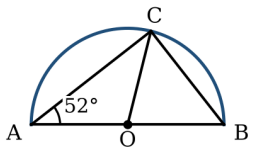
Day 78 **S Tier 10-a-day**

1 A flight leaves London at 18:20 (London time).
It takes 8 hours 35 minutes.
When it is 12:00 in London it is 04:00 in Los Angeles.
At what time, in Los Angeles time, does the flight land? Say if it is on a different day.

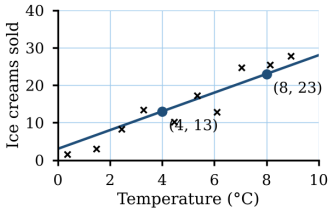
2 AB is a diameter of a circle, centre O. C is a point on the circle. Angle BAC = 52°.
(a) Work out the size of angle ACB.
(b) Work out the size of angle COB.
The diagram is not drawn accurately.



3 Simplify fully $\frac{7x^3y^5 \times 8xy^2}{4x^3y^4}$

Give your answer in the form kx^ay^b

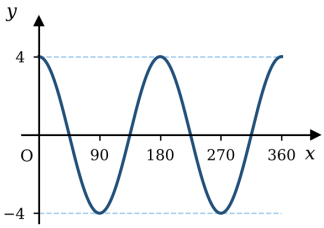
4 The scatter graph shows temperature (x) and ice creams sold (y).
The line of best fit passes through (4, 13) and (8, 23).
(a) Find its equation in the form y = mx + c.
(b) Explain what its gradient tells you.



5 Uma puts £3,000 in a savings account.
Compound interest is paid at 3% in year 1, 6% in year 2 and 1% in year 3.
Work out the amount in the account at the end of year 3.
Give your answer to the nearest penny.
(Calculator)

Day 78 **S Tier 10-a-day**

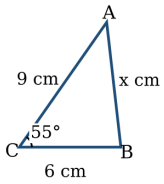
6 The diagram shows the graph of $y = a \cos bx$, where a and b are positive integers.
(a) Write down the value of a and the value of b.
(b) Work out the value of y when $x = 330°$.



7 The probability that a light bulb in a hallway fails in any month is $\frac{1}{20}$.
Events on different occasions are independent.
Work out the probability that this happens at least once in 3 months.
Give your answer correct to 3 significant figures. (Calculator)

8 A population is increased by x% in one year and then increased by a further x% the next year.
Over the two years the population increases by 44%.
Work out the value of x.

9 The diagram shows triangle ABC. (Calculator)
(a) Work out the length of AB, marked x, to 1 decimal place.
(b) Work out the area of triangle ABC to 3 significant figures.
The diagram is not drawn accurately.



10 $f(x) = -2x - 1$ and $g(x) = 5x^2 - 5$
(a) Find fg(x).
(b) Solve $fg(x) = -81$