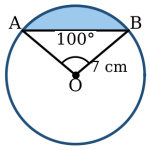
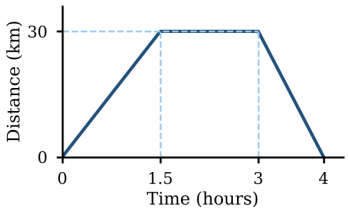
Day 221 **S Tier 10-a-day**

1 A flight leaves London at 15:45 (London time).
It takes 12 hours 35 minutes.
When it is 12:00 in London it is 19:00 in Singapore.
At what time, in Singapore time, does the flight land? Say if it is on a different day.

2 The circle has centre O and radius 7 cm. A and B are points on the circle and angle AOB = 100°. (Calculator)
Work out the area of the shaded segment. Give your answer correct to 3 significant figures.
The diagram is not drawn accurately.



3 The graph shows Nadia's cycle ride to a café and back.
(a) Work out Nadia's speed on the way back.
(b) Work out Nadia's average speed for the whole ride, including the stop.

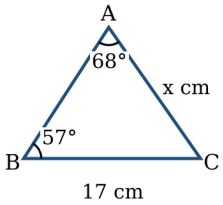


4 Simplify $(49x^6y^{-4})^{\frac{1}{2}}$

5 Work out $(8.4 \times 10^2) - (1.1 \times 10^1)$
Give your answer in standard form.

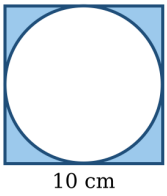
Day 221 **S Tier 10-a-day**

6 The diagram shows triangle ABC. (Calculator)
Work out the length of AC. Give your answer correct to 1 decimal place.
The diagram is not drawn accurately.



7 Given that $x > 0$, solve $x^{\frac{3}{2}} = 729$

8 The diagram shows a circle inside a square of side 10 cm.
The circle touches all four sides of the square.
Work out the area of the shaded region. Give your answer in terms of π.



9 $f(x) = \frac{-4x - 1}{2x + 4}$ where $x \neq -2$
(a) Show that $ff(x) = x$.
(b) Write down $f^{-1}(x)$.

10 $x : y = 5 : 6$
Work out the ratio $(4x + 1y) : (4y - 1x)$
Give your answer in its simplest form.