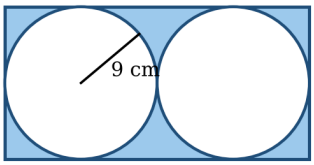
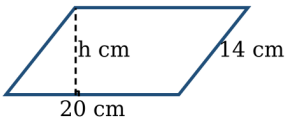
Day 304 **A Tier 10-a-day**

1 2 identical circles of radius 9 cm fit exactly inside a rectangle.
The circles touch each other and the sides of the rectangle. (Calculator)
Work out the area of the shaded region.
Give your answer to 3 significant figures.



2 One grain of sand has a mass of 1.5×10^{-7} kg.
A sample contains 3×10^{4} grains of sand.
Work out the total mass of the sample.
Give your answer in standard form.

3 The area of this parallelogram is 200 cm^2.
Work out the value of h.
The diagram is not drawn accurately.



4 (a) Simplify $\sqrt{75}$
(b) Simplify $\sqrt{75} - \sqrt{48}$

5 y is directly proportional to the square of x.
When x = 3, y = 36.
(a) Find a formula for y in terms of x.
(b) Work out the value of y when x = 1.

Day 304	A Tier 10-a-day
6 Factorise $6x^2 + 5x - 6$	
7 Change 10000 cm^2 to m^2.	
8 Make x the subject of $y = \frac{4x - 5}{2x + 6}$	
9 The length and width of a rectangular poster are 16.8 cm and 9.4 cm. Each measurement is correct to 1 decimal place. Work out the lower bound for the area.	
10 (a) Show that $0.\dot{1}\dot{0} = \frac{10}{99}$ (b) Hence write $2.\dot{1}\dot{0}$ as a mixed number in its simplest form.	