



For each of these example questions work through and decide:

- (a) Is it a mathematical problem – in the sense defined in the PowerPoint?
- (b) If so, what are the properties that make it a problem?

(More than one content area, a succession of processes, no obvious standard method, unfamiliar, requires translation to allow suitable mathematical processes.)

Mark schemes for the questions are available

A Jan 2019 4MA0 4HR

22 $a = 2x + 1$ $b = 3x - 2$ $c = x - 1$

Express $1 - \frac{a + \frac{1}{b}}{a + \frac{1}{c}}$ in the form $\frac{1}{px^2 + qx}$ where p and q are integers.

B Jan 2019 4MA1 2F

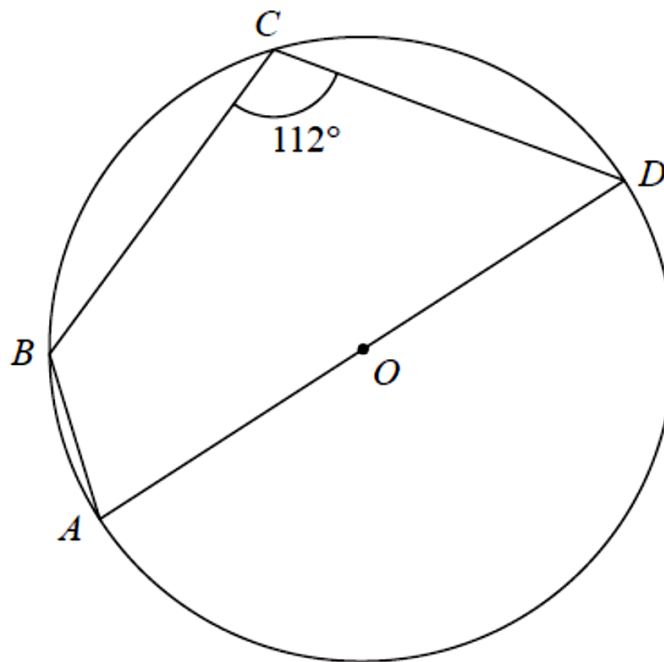
- 14** Toy cars are made in a factory.
300 cars per hour are made in the factory.
Cars are made in the factory for $9\frac{1}{2}$ hours each day.
8% of the cars made in the factory are faulty.
The rest of the cars made in the factory are **not** faulty.
Work out how many of the cars made each day are **not** faulty.



- 14 (c)** Solve $x^2 + 3x - 18 = 0$
Show your working clearly.

D Jan 2019 4MA0 4HR

- 17** A, B, C and D are points on a circle, centre O .



AOD is a diameter of the circle.

Angle $BCD = 112^\circ$

Calculate the size of angle ADB .

E Jan 2019 4MA1 2F



- 19 Calvin has 12 identical rectangular tiles. He arranges the tiles to fit exactly round the edge of a shaded rectangle, as shown in the diagram below.

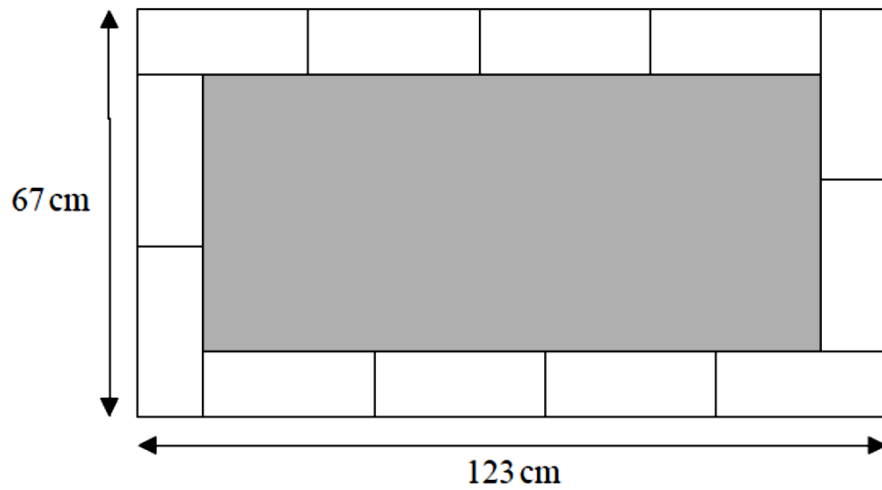


Diagram **NOT** accurately drawn

Work out the area of the shaded rectangle.