3

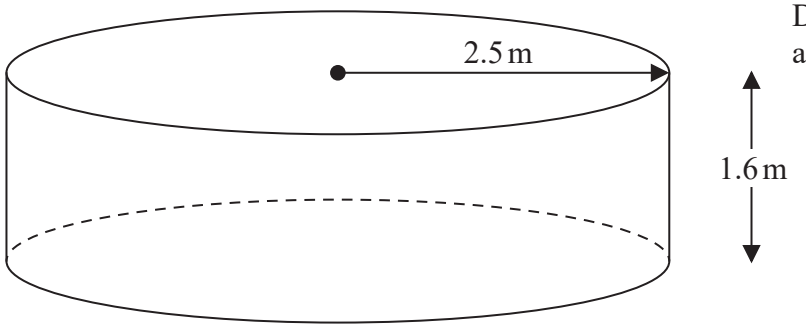

Diagram **NOT** accurately drawn

Figure 2

Figure 2 shows an empty tank in the shape of a right circular cylinder.
The axis of the cylinder is vertical.

Adelih is going to put water into the tank so that the surface of the water is level with the top of the tank.
The water flows into the tank at a constant rate of R litres per minute.

Given that $R = 109$

(a) calculate, in hours and minutes to the nearest minute, the time taken by the water to flow into the tank.

(5)

Adelih wants the time taken by the water to flow into the tank to be 3 hours.

(b) Calculate the value, to the nearest whole number, of R.

(2)

$$\left(\begin{array}{c} 1\,\text{m}^3 = 1000 \text{ litres} \\ \text{Volume of cylinder} = \pi r^2 h \end{array}\right)$$

Question 3 continued

(Total for Question 3 is 7 marks)