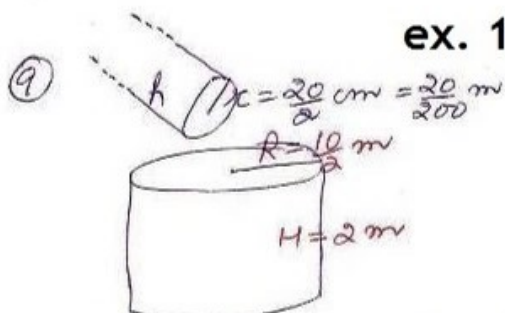


ex. 13.3



vol of water flowing out  
 = vol of water collected

$$\pi r^2 h = \pi R^2 H$$

$$\frac{20}{100} \times \frac{20}{100} \times h = \frac{10}{2} \times \frac{10}{2} \times 2$$

$$\Rightarrow h = 5 \times 10 \times 10 \times 10$$

$$= 5000 \text{ m}$$

$\therefore$  distance travelled  
 by water in pipe  
 = 5000 m  
 = 5 km (this is  
 not  
 length of pipe)

$$s = 3 \text{ km/h}$$

$$\therefore \text{time} = \frac{d}{s}$$

$$= \frac{5}{3} \text{ h}$$

$$= 1 \text{ h } 40 \text{ min}$$