



$$\text{rate} = \frac{\pi(4.9)^2 - \pi(3.9)^2 \text{ cm}^2}{1 \text{ hr}}$$

$$= \frac{27 \text{ cm}^2}{\text{hr}}$$

$$\text{Area to reach} = \pi(20)^2 - \pi(3.9)^2$$

$$\text{Target} = 1208.24 \text{ cm}^2$$

Time to reach

$$= \frac{1208.24 \text{ cm}^2}{27 \text{ cm}^2/\text{hr}} = 44.75 \text{ hr}$$

Target

$$= \boxed{44 \text{ h } 45 \text{ m}}$$