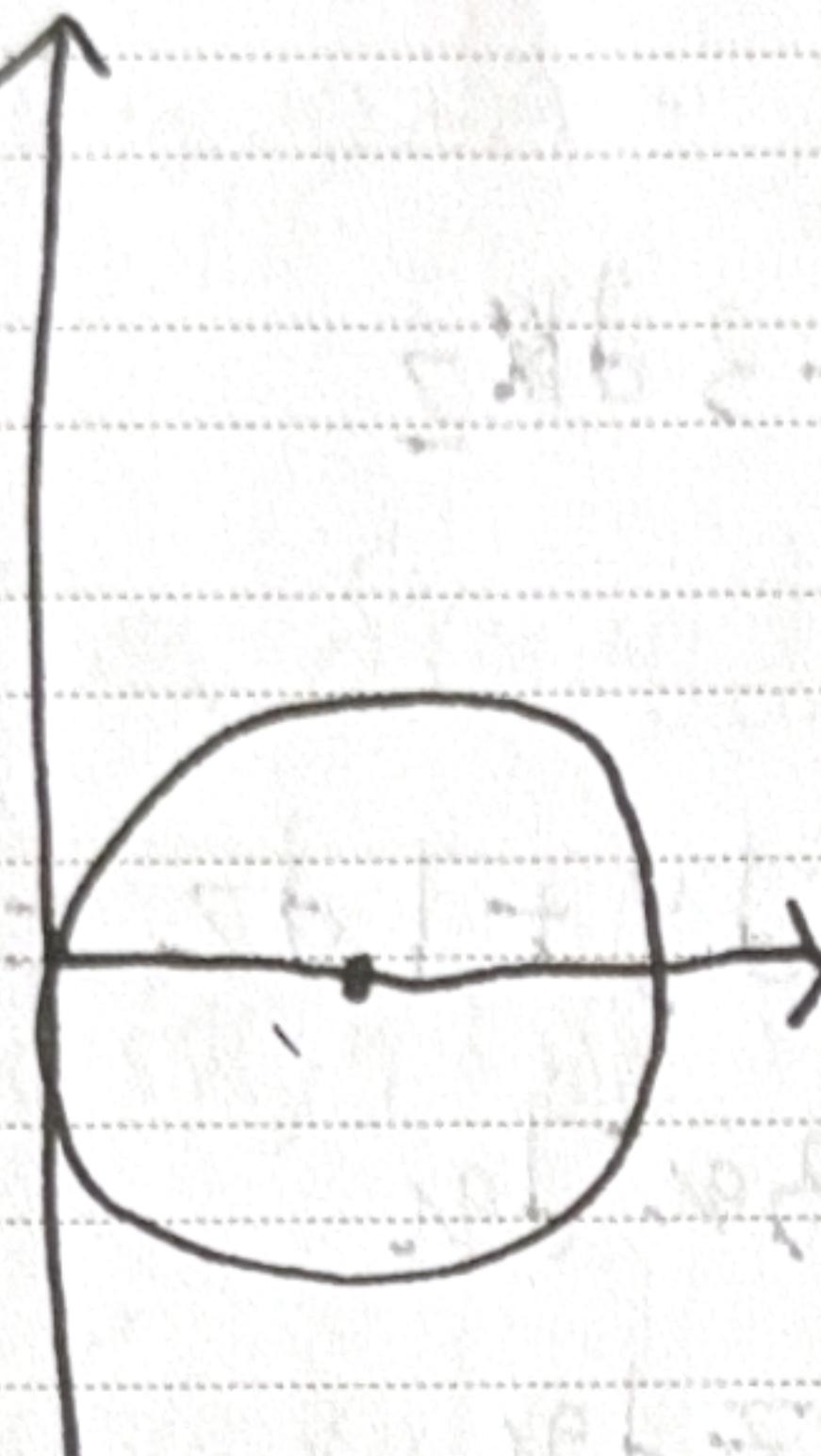


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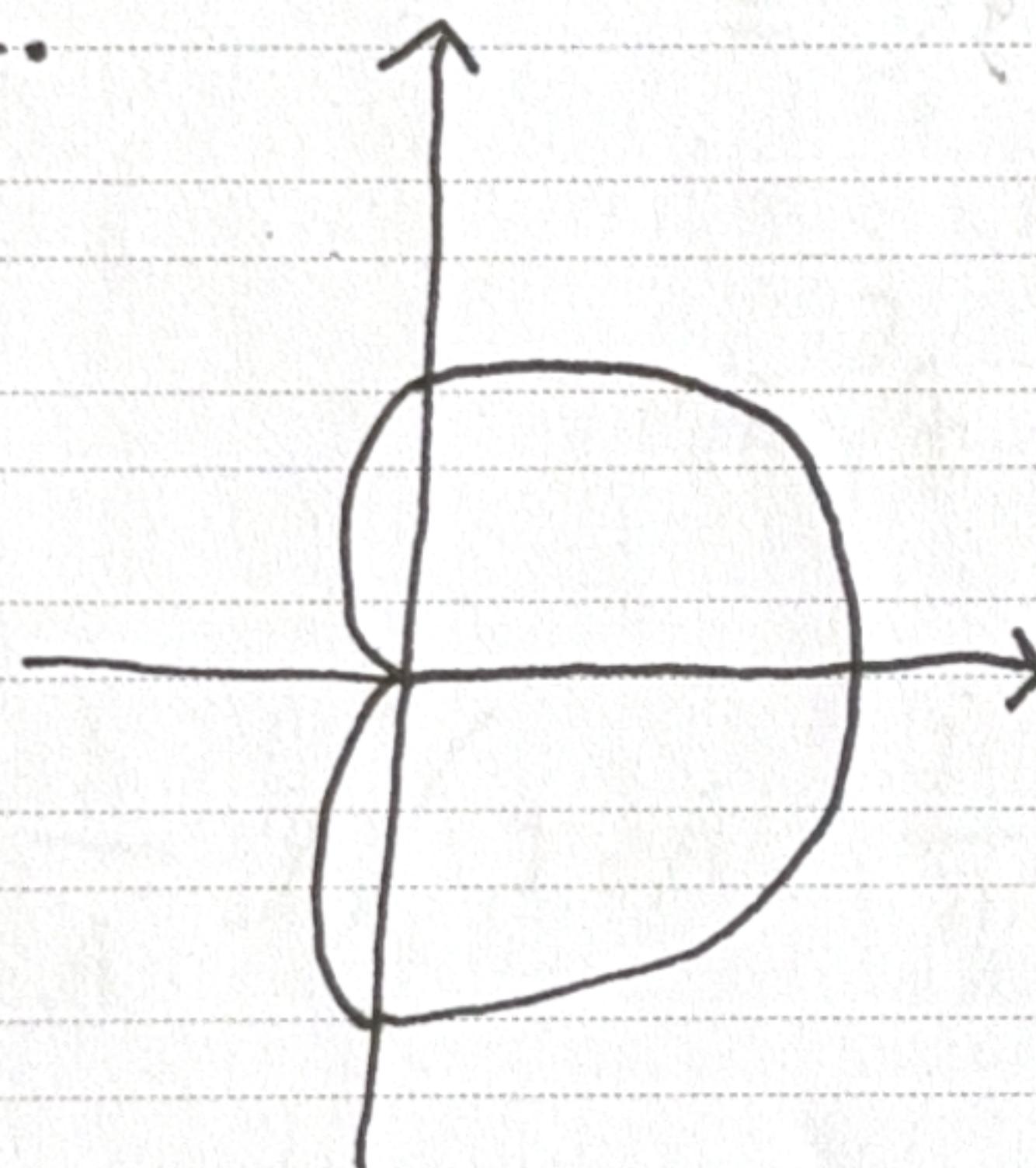
PP/10/22/22

1.



$$\begin{aligned}
 & \int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \int_0^{2\cos\theta} \frac{1}{r} r dr d\theta \\
 &= \int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} 2\cos\theta \, d\theta \\
 &= 2 \sin\theta \Big|_{-\frac{\pi}{2}}^{\frac{\pi}{2}} = 4
 \end{aligned}$$

2.



$$\begin{aligned}
 & \int_0^{2\pi} \int_0^{1+\cos\theta} r dr d\theta \\
 &= \int_0^{2\pi} \frac{(1+\cos\theta)^2}{2} d\theta \\
 &= \int_0^{2\pi} \frac{1}{2} + \cos\theta + \frac{\cos^2\theta}{2} d\theta \\
 &= \pi + 0 + \frac{\pi}{2} = \frac{3\pi}{2}
 \end{aligned}$$