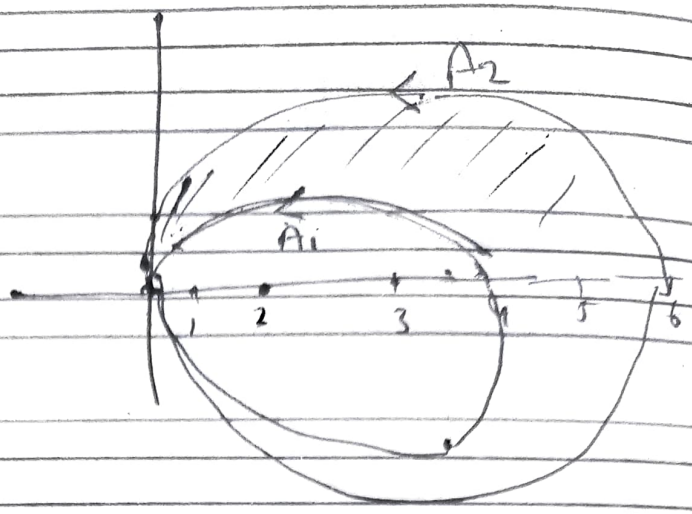
$(x-2)^2 + y^2 = 4$

$(x-3)^2 + y^2 = 9$



for arc length A_1

$$A_1 = \int_{x=0}^{4} \sqrt{1 + \left[\frac{(x-2)}{\sqrt{4-(x-2)^2}}\right]^2}$$

$$\left[\text{Arc} = \int \sqrt{1 + \left(\frac{dy}{dx}\right)^2}\right.$$

$$\Rightarrow \int_{x=0}^{4} \sqrt{\frac{4-(x-2)^2 + (x-2)^2}{4-(x-2)^2}}\, dx$$

$$\Rightarrow 2\int_{x=0}^{4} \frac{1}{\sqrt{(2)^2 - (x-2)^2}}\, dx \Rightarrow 2\left[\sin^{-1}\left(\frac{x-2}{2}\right)\right]_0^4$$

$$\Rightarrow 2\left[\sin^{-1}1 - \sin^{-1}(-1)\right] = 2\left[\frac{\pi}{2} + \frac{\pi}{2}\right] \Rightarrow \boxed{2\pi}$$

$$A_2 = \int_{x=0}^{6} \sqrt{1 + \left(\frac{(x-3)}{\sqrt{9-(x-3)^2}}\right)^2}\, dx$$

$$\Rightarrow 2\int_{x=0}^{6} \frac{1}{\sqrt{(3)^2 - (x-3)^2}}\, dx = 2\left[\sin^{-1}\left(\frac{x-3}{3}\right)\right]_0^6$$

$$\Rightarrow 2\left[\sin^{-1}1 - \sin^{-1}(-1)\right] = \boxed{2\pi}$$

Total arc length $= 2\pi + 2\pi$

$= \boxed{4\pi}$ Ans