$= ar(I) = ar(II) = a(III) = ar(IV)$

$= y^2 = a^2 - x^2$

$y = \sqrt{a^2 - x^2}$

$A_I = \left| \int_2^0 \sqrt{a^2 - x^2}\, dx \right|$

$x = a\sin\theta \quad dx = \cos\theta$

$A_I = \left| \int_a^0 \sqrt{a^2(1 - \sin^2\theta)}\, a\cos\theta\, d\theta \right|$

$= \left| \int_{\pi/2}^0 \sqrt{a^2\cos^2\theta}\, (a\cos\theta)\, d\theta \right|$

$= \left| \int_{\pi/2}^0 (a\cos\theta)^2\, d\theta \right|$

$= \left| \frac{a^2}{2} \int_{\pi/2}^0 2\cos^2\theta\, d\theta \right|$

$\left| \frac{a^2}{2} \int_{\pi/2}^0 (\cos 2\theta + 1)\, d\theta \right|$

$\left| \frac{a^2}{2} \left[\frac{\sin 2\theta}{2} + \theta \right]_{\pi/2}^0 \right]$

$\left| \frac{a^2}{2} \left[\frac{\sin\theta}{2} + 0 - \frac{\sin\pi}{2} - \frac{\pi}{2} \right) \right|$

$\frac{a^2}{2} \left[0 + 0 - 0 - \pi/2 \right] |$

$A_I = \left| -\frac{\pi a^2}{4} \right| = \frac{\pi a^2}{4}$

Full eqn. $= R_1 + R_2 + R_3 + R_4 + \left(\frac{\Pi q^2}{4}\right)$

$= \frac{\Pi q^2}{\Pi q \cdot q}$

Ans $=$ $\frac{\Pi q^2}{}$