Electric Potential of Charged Ring

- Total charge on ring: $Q$
- Charge per unit length: $\lambda = Q/2\pi a$
- Charge on arc: $dq$

Find the electric potential at point $P$ on the axis of the ring.

- $dV = k \frac{dq}{r} = \frac{k dq}{\sqrt{x^2 + a^2}}$

- $V(x) = k \int \frac{dq}{\sqrt{x^2 + a^2}} = \frac{k}{\sqrt{x^2 + a^2}} \int dq = \frac{kQ}{\sqrt{x^2 + a^2}}$