

NOTE CHECK → 5.4

LENGTH OF A CURVE:

$$L = \int_a^b \sqrt{\quad} dx \text{ ALONG } \underline{\underline{X\text{-AXIS}}}$$

$$L = \int_c^d \sqrt{\quad} dy \text{ ALONG } \underline{\underline{Y\text{-AXIS}}}$$

Ex 1:  $f(x) = \frac{1}{3}x^3 + \frac{1}{4x}$  on  $[1, 3]$

$$f'(x) = \quad, \quad L = \int$$

Ex 2:  $y = x^{\frac{2}{3}}$  From  $(1, 1)$  to  $(2, 2\sqrt{2})$

$$y' = \quad , L = \int$$

SURFACE AREA OF REVOLUTION:

$$S.A. = \int_a^b \sqrt{\quad} dx \text{ Around } \underline{X\text{-AXIS}}$$

$$S.A. = \int_c^d \sqrt{\quad} dy \text{ Around } \underline{Y\text{-AXIS}}$$

Ex 3: S.A. ...  $y = x^3$  BETWEEN  $x=0$  &  $x=1$  ABOUT X-AXIS

$$y = x^3 \rightarrow y' = \quad \rightarrow S.A. = \int$$