What is integration by parts?

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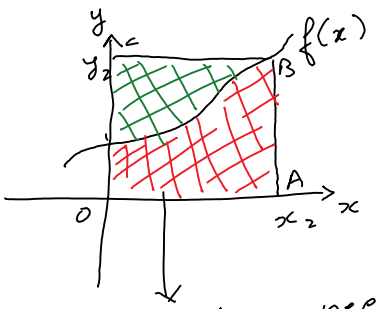
1:34 PM

Think Visually



1. what we need !
2. what we have ?
   - $\int y\,dx$ - YES
   - Area of the enclosing rectangle - YES

Integ. by parts

$$\int x\,dy = xy - \int y\,dx$$

$\int x\,dy$ = area under the curve $f(x)$ & x-axis

similarly,

$\int y\,dx$ = "you-know-what"

$$\Rightarrow \int x\,dy = \text{ar. of } OABC - \int y\,dx$$

$$= x_2 y_2 - \int_a^b y\,dx \quad [\text{If it's definite integral}]$$

- Note: a & b can take any value ; $a \leq b$ -

In general if it's indefinite integral

$$= \boxed{xy - \int y\,dx} \;\ddot{\smile}$$