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$$\int_0^3 3^x \tan(|\sin \pi x| + |\cos \pi x|) dx$$

$$\int_0^{\frac{1}{2}} 3^x \tan(|\sin \pi x| + |\cos \pi x|) dx$$

$f(x)$ period = $\frac{1}{2}$

$$N^{-r} = \int_0^{\frac{1}{2}} 3^x f(x) dx + \int_{\frac{1}{2}}^1 3^x f(x) dx + \dots$$

$$= \int_0^{\frac{1}{2}} 3^x f(x) dx + \int_0^{\frac{1}{2}} 3^{x+\frac{1}{2}} f(x) dx + \dots$$

$$= \int_0^{\frac{1}{2}} 3^x f(x) (1 + \sqrt{3} + \sqrt{3}^2 + \dots + \sqrt{3}^5)$$

$$\text{Ans.} = \frac{1((\sqrt{3})^6 - 1)}{\sqrt{3} - 1} = \frac{26}{\sqrt{3} - 1}$$