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Sharpening of Jordan's Inequality and its Applications

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Abstract:

In this paper, the following inequality:

$$\frac{2}{\pi} + \frac{1}{2\pi^5}(\pi^4 - 16x^4) \leq \frac{\sin x}{x} \leq \frac{2}{\pi} + \frac{\pi - 2}{\pi^5}(\pi^4 - 16x^4)$$

is established. An application of this inequality gives an improvement of Yang Le's inequality.



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