

A DISCRETE APPROACH TO WIRTINGER'S INEQUALITY

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Abstract. Considering Wirtinger's inequality for piece-wise equipartite functions we find a discrete version of this classical inequality. The main tool we use is the theorem of classification of isometries. Our approach provides a new elementary proof of Wirtinger's inequality that also allows to study the case of equality. Moreover it leads in a natural way to the Fourier series development of 2π -periodic functions.

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