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Certain Inequalities Concerning Some Kinds Of Chordal Polygons

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Abstract: This paper deals with certain inequalities concerning some kinds of chordal polygons (Definition 1.2). The main part of the article concerns the inequality

$$\sum_{j=1}^n \cos \beta_j > 2k,$$

where

$$\sum_{j=1}^n \beta_j = (n - 2k) \frac{\pi}{2}, \quad n - 2k > 0, \quad 0 < \beta_j < \frac{\pi}{2}, \quad j = \overline{1, n}.$$

This inequality is considered and proved in [5, pp. 143-145]. Here we have obtained some new results. Among others we found some chordal polygons with the property that $\sum_{j=1}^n \cos^2 \beta_j = 2k$, where $n = 4k$ (Theorem 2.17).

Also it could be mentioned that Theorem 2.19 is a modest generalization of the Pythagorean theorem.



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