

Fagnano Dei Toschi, Giovanni Francesco | Encyclopedia.com

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(b. Sinigaglia, Italy, 31 January 1715; d. Sinigaglia, 14 May 1797)

mathematics.

Giovanni Francesco was the only child of Giulio Carlo Franano to show an interest in mathematics. He was ordained a priest and in 1752 was appointed canon of the cathedral of Sinigaglia. Three years later he was made archpriest. He wrote an unpublished treatise on the geometry of the triangle that was inspired by a similar work of his father's. Fagnano made several important contributions to the subject, among them the theorem that the triangle which has as its vertices the bases of the altitudes of any triangle has these altitudes as its bisectors. He also contributed several analytical communications to the *Acta eruditorum* and to other Italian and foreign reviews.

Among his most important results is that given,

$$S_n = \int x^n \sin x dx, C_n = \int x^n \cos x dx,$$

we obtain

$$S_n = -x^n \cos x + C_{n-1}, C_n = x^n \sin x - nS_{n-1}$$

He also calculated the integrals:

$$\int \tan x dx = -\log \cos x, \int \cot x dx = \log \sin x.$$

BIBLIOGRAPHY

Among Fagnano's writing is *Nova acta eruditorum* (1774), pp. 385–420. Two further sources of information on his mathematical work are *Enciclopedia delle matematiche elementari*, I, pt. 2 (1932), 491–492; and Gino Loria, *Storia della matematiche*, 2nd ed. (Milan, 1950), p. 664.

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