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$Let\ \ m\geq 0\ \ and\ \ M\ an\ interior\ \ point\ \ in\ \Delta ABC\ \ with\ \ the\ area\ \ F$

$and\ \ F_a = area\ MBC, F_b = area\ MCA, F_C = areaMAB.\ \ Prove\ that:$

$$\frac{a^{2m+2}}{F_b^m}+\frac{b^{2m+2}}{F_c^m}+\frac{c^{2m+2}}{F_a^m}\geq 4^{m+1}.\left(\sqrt{3}\right)^{m+1}.F$$

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Solution by Mirsadix Muzefferov-Azerbaijan

$$\frac{a^{2m+2}}{F_b^m}+\frac{b^{2m+2}}{F_c^m}+\frac{c^{2m+2}}{F_a^m}=\frac{(a^2)^{m+1}}{F_b^m}+\frac{(b^2)^{m+1}}{F_c^m}+\frac{(c^2)^{m+1}}{F_a^m}\overset{Radon}{\geq}$$

$$\geq\frac{(a^2+b^2+c^2)^{m+1}}{(F_a+F_b+F_c)^m}=\frac{(a^2+b^2+c^2)^{m+1}}{F^m}\overset{Ionescu-Weitzenbock}{\geq}$$

$$\geq\frac{\left(4\sqrt{3}F\right)^{m+1}}{F^m}=4^{m+1}.\left(\sqrt{3}\right)^{m+1}.F$$

$Equality\ \ holds\ \ for:\ \ a=b=c.$