If $a, b, c > 0, \dfrac{1}{a^2} + \dfrac{1}{b^2} + \dfrac{1}{c^2} \leq 3$ then:

$$\frac{1}{(a+1)^2} + \frac{1}{(b+1)^2} + \frac{1}{(c+1)^2} \leq \frac{3}{4}$$

Proposed by Nguyen Hung Cuong-Vietnam

Solution by Tapas Das-India

$$\frac{1}{(a+1)^2} + \frac{1}{(b+1)^2} + \frac{1}{(c+1)^2} \overset{AM-GM}{\leq} \sum \frac{1}{\left(2\sqrt{a}\right)^2} =$$

$$= \frac{1}{4}\sum \frac{1}{a} = \frac{1}{4}\sum \sqrt{\left(\frac{1}{a} + \frac{1}{b} + \frac{1}{c}\right)^2} \leq$$

$$\leq \frac{1}{4}\sum \sqrt{\left(3\left(\frac{1}{a^2} + \frac{1}{b^2} + \frac{1}{c^2}\right)\right)} \leq \frac{1}{4}\sqrt{9} = \frac{3}{4}\left(since, \frac{1}{a^2} + \frac{1}{b^2} + \frac{1}{c^2} \leq 3\right)$$