

# Projeto Mathematical Ramblings

[bit.ly/mathematicalramblings](http://bit.ly/mathematicalramblings)

Sendo  $r_1$ ,  $r_2$  e  $r_3$  as raízes da equação  $2x^3 - 4x^2 + 3x + 1 = 0$ , calcular  $\frac{1}{r_1^2} + \frac{1}{r_2^2} + \frac{1}{r_3^2}$ .

$$\begin{aligned}\frac{1}{r_1^2} + \frac{1}{r_2^2} + \frac{1}{r_3^2} &= \frac{(r_1 r_2)^2 + (r_1 r_3)^2 + (r_2 r_3)^2}{(r_1 r_2 r_3)^2} = \\ &= \frac{(r_1 r_2 + r_1 r_3 + r_2 r_3)^2 - 2r_1 r_2 r_3 (r_1 + r_2 + r_3)}{(r_1 r_2 r_3)^2} = \frac{\left(\frac{3}{2}\right)^2 - 2 \cdot \left(-\frac{1}{2}\right) \cdot 2}{\left(-\frac{1}{2}\right)^2} = 17\end{aligned}$$

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