Solución a "Calcula la suma M"

Enunciado:

Si: $\frac{1}{a+b}+\frac{1}{b+c}+\frac{1}{a+c}=\frac{7}{10}$

$a+b+c=7$

Calcular: $M=\frac{a}{b+c}+\frac{b}{a+c}+\frac{c}{a+b}$

Solución:

$$M+3=\left(\frac{a}{b+c}+1\right)+\left(\frac{b}{a+c}+1\right)+\left(\frac{c}{a+b}+1\right)=\frac{a+b+c}{b+c}+\frac{a+b+c}{a+c}+\frac{a+b+c}{a+b}$$

$$M+3=(a+b+c)\cdot\left(\frac{1}{b+c}+\frac{1}{a+c}+\frac{1}{a+b}\right)=7\cdot\frac{7}{10}=\frac{49}{10}$$

$$M=\frac{49}{10}-3=\frac{19}{10}$$

Solución: $M = 19/10$

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