

a reellt

$$\begin{aligned} \frac{1}{1+2i} + \frac{1}{1-ai} &= \frac{1-2i}{1^2+2^2} + \frac{1+ai}{1^2+a^2} = \\ &= \frac{1-2i}{5} + \frac{1+ai}{1+a^2} = \frac{(1+a^2)(1-2i) + 5(1+ai)}{5(1+a^2)} = \\ &= \frac{1-2i+a^2-2a^2i+5+5ai}{5(1+a^2)} = \\ &= \frac{6+a^2+i(5a-2-2a^2)}{5(1+a^2)} \end{aligned}$$

↑
MGN

$$\text{Talet reellt} \Leftrightarrow 5a-2-2a^2=0 \Leftrightarrow$$

$$\Leftrightarrow a^2 - \frac{5}{2}a + 1 = 0$$

$$\Leftrightarrow a = \frac{5}{4} \pm \sqrt{\left(\frac{5}{4}\right)^2 - 1} = \frac{5}{4} \pm \frac{3}{4} = \begin{cases} 2 \\ \frac{1}{2} \end{cases}$$