

MAT 91112 Opgave E 43

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Vi skal løse ligningen

$$\frac{1}{z-i} - \frac{1}{3+i} = 1$$

Vi finder

$$\begin{aligned} \frac{1}{z-i} - \frac{1}{3+i} &= 1 \iff \frac{1}{z-i} = 1 + \frac{1}{3+i} = \frac{4+i}{3+i} \\ \iff z-i &= \frac{3+i}{4+i} \\ \iff z &= i + \frac{(3+i)(4-i)}{(4+i)(4-i)} = i + \frac{13+i}{17} \\ \iff z &= \frac{13}{17} + \frac{18}{17}i \end{aligned}$$