

Aufgabe 5.28

Berechnen Sie $\frac{(3-4i)(2-i)}{2+i} - \frac{(3+4i)(2+i)}{2-i}$!

Lösung:

$$\frac{(3-4i)(2-i)}{2+i} = \frac{6-11i-4}{2+i} = \frac{(2-11i)(2-i)}{(2+i)(2-i)} = \frac{4-24i-11}{5} = -\frac{7}{5} - \frac{24}{5}i,$$

$$\frac{(3+4i)(2+i)}{2-i} = \frac{6+11i-4}{2-i} = \frac{(2+11i)(2+i)}{(2-i)(2+i)} = \frac{4+24i-11}{5} = -\frac{7}{5} + \frac{24}{5}i$$

(konjugiert komplex, es gilt $\overline{z_1 z_2} = \overline{z_1} \overline{z_2}$, $\overline{\left(\frac{z_1}{z_2}\right)} = \frac{\overline{z_1}}{\overline{z_2}}$)

Differenz: $\underline{\underline{-\frac{48}{5}i}}$