M-3 Realni dio kompleksnog broja $\frac{2-i}{2+i}-\frac{2+i}{2-i}$ iznosi:

A . 2 B . $-\frac{4}{5}$ C . $\frac{4}{5}$ D . 1 E . 0

Realno od $\frac{2-i}{2+i}-\frac{2+i}{2-i}=?$

$\downarrow \quad \downarrow$

1. 2.

1.) $$\frac{2-i}{2+i}=\frac{2-i}{2+i}\cdot\frac{2-i}{2-i}=\frac{(2-i)^2}{2^2-i^2}=\frac{4-4i+i^2}{4-(-1)}=\frac{4-4i-1}{4+1}=\frac{3-4i}{5}$$

2.) $$\frac{2+i}{2-i}=\frac{2+i}{2-i}\cdot\frac{2+i}{2+i}=\frac{(2+i)^2}{2^2-i^2}=\frac{4+4i+i^2}{4-(-1)}=\frac{4+4i-1}{5}=\frac{3+4i}{5}$$

Uvrstimo to u zadatak:

$$\frac{2-i}{2+i}-\frac{2+i}{2-i}=\frac{3-4i}{5}-\frac{3+4i}{5}=\frac{3-3-4i-4i}{5}=-\frac{8}{5}i=0-\frac{8}{5}i$$

$\downarrow \quad \searrow$

$\mathrm{Re}=0 \quad , \quad \mathrm{Im}=-\frac{8}{5}$

Imaginarni dio je $-\frac{8}{5}$, a realni je 0 (E rješenje) .