

$$\left(\frac{a-5}{a^2-5a+25}-\frac{12a-61}{a^3+125}\right)\cdot\frac{3a-18}{2a^2-10a+50}=\left(\frac{a-5}{a^2-5a+25}-\frac{12a-61}{a^3+125}\right)\frac{2a^2-10a+50}{3a-18}=$$

$$=\left(\frac{a-5}{a^2-5a+25}-\frac{12a-61}{(a+5)(a^2-5a+25)}\right)\frac{2a^2-10a+50}{3(a-6)}=$$

$$=\left(\frac{(a-5)(a+5)}{(a^2-5a+25)(a+5)}-\frac{12a-61}{(a+5)(a^2-5a+25)}\right)\frac{2a^2-10a+50}{3(a-6)}=$$

$$=\frac{(a-5)(a+5)-(12a-61)2a^2-10a+50}{(a^2-5a+25)(a+5)}\frac{2a^2-10a+50}{3(a-6)}=\frac{(a^2-25)-(12a-61)2a^2-10a+50}{(a^2-5a+25)(a+5)}\frac{2a^2-10a+50}{3(a-6)}=$$

$$=\frac{a^2-25-12a+61}{(a^2-5a+25)(a+5)}\frac{2a^2-10a+50}{3(a-6)}=\frac{a^2+36-12a}{(a^2-5a+25)(a+5)}\frac{2a^2-10a+50}{3(a-6)}=$$

$$=\frac{(a^2+36-12a)(2a^2-10a+50)}{3(a^2-5a+25)(a+5)(a-6)}=\frac{(a-6)(a-6)2(a^2-5a+25)}{3(a^2-5a+25)(a+5)(a-6)}=\frac{(a-6)2}{3(a+5)}=\frac{2(a-6)}{3(a+5)}$$