$$\left(\frac{\sqrt{3}-\sqrt{6}}{\sqrt{2}}-\frac{\sqrt{6}+\sqrt{2}}{\sqrt{3}}-\frac{1}{\sqrt{6}}\right)\left(\frac{1}{\sqrt{2}}-\frac{3}{\sqrt{12}}\right)$$

Die Brüche werden von den Wurzeln im Nenner befreit:

$$\left.\begin{aligned}&\frac{\sqrt{3}-\sqrt{6}}{\sqrt{2}}\cdot\frac{\sqrt{2}}{\sqrt{2}}=\frac{\sqrt{6}-\sqrt{12}}{2}=\frac{\sqrt{6}-2\sqrt{3}}{2}\\&\frac{\sqrt{6}+\sqrt{2}}{\sqrt{3}}\cdot\frac{\sqrt{3}}{\sqrt{3}}=\frac{\sqrt{18}+\sqrt{6}}{3}=\frac{3\sqrt{2}+\sqrt{6}}{3}\\&\frac{1}{\sqrt{6}}\cdot\frac{\sqrt{6}}{\sqrt{6}}=\frac{\sqrt{6}}{6}\end{aligned}\right\}\quad\text{zusammenfassen, gleichnamig machen}$$

$$\frac{3\sqrt{6}-6\sqrt{3}}{6}-\frac{6\sqrt{2}+2\sqrt{6}}{6}-\frac{\sqrt{6}}{6}=\frac{3\sqrt{6}-6\sqrt{3}-6\sqrt{2}-2\sqrt{6}-\sqrt{6}}{6}=\left(-6\sqrt{3}-6\sqrt{2}\right):6=-\sqrt{3}-\sqrt{2}=-\left(\sqrt{2}+\sqrt{3}\right)$$

$$\left.\begin{aligned}&\frac{1}{\sqrt{2}}\cdot\frac{\sqrt{2}}{\sqrt{2}}=\frac{\sqrt{2}}{2}\\&\frac{3}{\sqrt{12}}=\frac{3}{2\sqrt{3}}\cdot\frac{\sqrt{3}}{\sqrt{3}}=\frac{3\sqrt{3}}{6}=\frac{\sqrt{3}}{2}\end{aligned}\right\}\quad\text{zusammenfassen}$$

$$\frac{\sqrt{2}}{2}-\frac{\sqrt{3}}{2}=\frac{\sqrt{2}-\sqrt{3}}{2}$$

Nun müssen die beiden Terme noch multipliziert werden:

$$-\left(\sqrt{2}+\sqrt{3}\right)\cdot\frac{\sqrt{2}-\sqrt{3}}{2}=-\frac{\left(\sqrt{2}+\sqrt{3}\right)\left(\sqrt{2}-\sqrt{3}\right)}{2}=-\frac{2-3}{2}=\frac{1}{2}$$