

2014年 第1問

1 次の式を簡単にせよ.

$$\begin{aligned}
 & \frac{1}{1 + \sqrt{2} - \sqrt{3} - \sqrt{6}} + \frac{1}{1 - \sqrt{2} + \sqrt{3} - \sqrt{6}} \\
 = & \frac{1}{(1 - \sqrt{6}) - (\sqrt{3} - \sqrt{2})} + \frac{1}{(1 - \sqrt{6}) + (\sqrt{3} - \sqrt{2})} \\
 = & \frac{(1 - \sqrt{6}) + (\sqrt{3} - \sqrt{2}) + (1 - \sqrt{6}) - (\sqrt{3} - \sqrt{2})}{\{(1 - \sqrt{6}) - (\sqrt{3} - \sqrt{2})\} \{(1 - \sqrt{6}) + (\sqrt{3} - \sqrt{2})\}} \\
 = & \frac{2(1 - \sqrt{6})}{(1 - \sqrt{6})^2 - (\sqrt{3} - \sqrt{2})^2} \\
 = & \frac{2(1 - \sqrt{6})}{7 - 2\sqrt{6} - 5 + 2\sqrt{6}} \\
 = & \frac{1 - \sqrt{6}}{1}
 \end{aligned}$$