

Đáp án bài 48 trang 29 SGK toán đại số lớp 9 tập 1

Đề bài:

Khử mẫu của biểu thức lấy căn

$$\sqrt{\frac{1}{600}}; \sqrt{\frac{11}{540}}; \sqrt{\frac{3}{50}}; \sqrt{\frac{5}{98}}; \sqrt{\frac{(1-\sqrt{3})^2}{27}}$$

Đáp án:

Ta có:

$$\begin{aligned}
 +\sqrt{\frac{1}{600}} &= \frac{\sqrt{1}}{\sqrt{600}} = \frac{1}{\sqrt{6 \cdot 100}} = \frac{1}{\sqrt{6 \cdot 10^2}} \\
 &= \frac{1}{\sqrt{6} \cdot \sqrt{10^2}} = \frac{1}{10\sqrt{6}} = \frac{1 \cdot \sqrt{6}}{10 \cdot 6} = \frac{\sqrt{6}}{60}
 \end{aligned}$$

$$\begin{aligned}
 +\sqrt{\frac{11}{540}} &= \frac{\sqrt{11}}{\sqrt{540}} = \frac{\sqrt{11}}{\sqrt{36 \cdot 15}} \\
 &= \frac{\sqrt{11}}{\sqrt{36} \cdot \sqrt{15}} = \frac{\sqrt{11}}{\sqrt{6^2} \cdot \sqrt{15}} \\
 &= \frac{\sqrt{11}}{6\sqrt{15}} = \frac{\sqrt{11} \cdot \sqrt{15}}{6 \cdot 15} \\
 &= \frac{\sqrt{11 \cdot 15}}{90} = \frac{\sqrt{165}}{90}
 \end{aligned}$$

$$\begin{aligned}
 +\sqrt{\frac{3}{50}} &= \frac{\sqrt{3}}{\sqrt{50}} = \frac{\sqrt{3}}{\sqrt{25 \cdot 2}} = \frac{\sqrt{3}}{\sqrt{25} \cdot \sqrt{2}} \\
 &= \frac{\sqrt{3}}{\sqrt{5^2} \cdot \sqrt{2}} = \frac{\sqrt{3}}{5\sqrt{2}} = \frac{\sqrt{3} \cdot \sqrt{2}}{5 \cdot 2} \\
 &= \frac{\sqrt{3 \cdot 2}}{10} = \frac{\sqrt{6}}{10}
 \end{aligned}$$

$$\begin{aligned}
+\sqrt{\frac{5}{98}} &= \frac{\sqrt{5}}{\sqrt{98}} = \frac{\sqrt{5}}{\sqrt{49 \cdot 2}} = \frac{\sqrt{5}}{\sqrt{49}\sqrt{2}} \\
&= \frac{\sqrt{5}}{\sqrt{7^2} \cdot \sqrt{2}} = \frac{\sqrt{5}}{7\sqrt{2}} = \frac{\sqrt{5} \cdot \sqrt{2}}{7 \cdot 2} \\
&= \frac{\sqrt{5 \cdot 2}}{14} = \frac{\sqrt{10}}{14}.
\end{aligned}$$

$$\begin{aligned}
+\sqrt{\frac{(1-\sqrt{3})^2}{27}} &= \frac{\sqrt{(1-\sqrt{3})^2}}{\sqrt{27}} = \frac{\sqrt{(1-\sqrt{3})^2}}{\sqrt{9 \cdot 3}} \\
&= \frac{\sqrt{(1-\sqrt{3})^2}}{\sqrt{3^2 \cdot 3}} = \frac{|1-\sqrt{3}|}{3\sqrt{3}}
\end{aligned}$$

$$\forall i \ 1 < 3 \Leftrightarrow \sqrt{1} < \sqrt{3} \Leftrightarrow 1 < \sqrt{3} \Leftrightarrow 1 - \sqrt{3} < 0$$

$$\Leftrightarrow |1 - \sqrt{3}| = -(1 - \sqrt{3}) = -1 + \sqrt{3} = \sqrt{3} - 1.$$

$$\text{Do đó: } \frac{|1 - \sqrt{3}|}{3\sqrt{3}} = \frac{\sqrt{3} - 1}{3\sqrt{3}} = \frac{\sqrt{3}(\sqrt{3} - 1)}{9} = \frac{3 - \sqrt{3}}{9}.$$