

## PEMBAHASAN LATIHAN SOAL

### 1. Jawaban (A)

$$\begin{aligned}
 \frac{\sqrt{75} + 2\sqrt{3}}{4 - \sqrt{15}} + \frac{\sqrt{12} - \sqrt{48}}{4 + \sqrt{15}} &= \frac{5\sqrt{3} + 2\sqrt{3}}{4 - \sqrt{15}} + \frac{2\sqrt{3} - 4\sqrt{3}}{4 + \sqrt{15}} \\
 &= \frac{(5\sqrt{3} + 2\sqrt{3})(4 + \sqrt{15}) + (-2\sqrt{3})(4 - \sqrt{15})}{(4 - \sqrt{15})(4 + \sqrt{15})} \\
 &= \frac{(28\sqrt{3} + 21\sqrt{5}) + (-8\sqrt{3} + 6\sqrt{5})}{16 - 15} \\
 &= 20\sqrt{3} + 27\sqrt{5}
 \end{aligned}$$

### 2. Jawaban (A)

$$\begin{aligned}
 \log 30 - \frac{1}{{}_{48}\log 10} + \frac{1}{{}_{16}\log 10} &= \log 30 - {}^{10}\log 48 + {}^{10}\log 16 \\
 &= \log \frac{30 \cdot 16}{48} \\
 &= \log 10 \\
 &= 1
 \end{aligned}$$

### 3. Jawaban (A)

$$\begin{aligned}
 {}^8\log 30 &= \frac{\log 30}{\log 8} \\
 &= \frac{{}^3\log 3 \times 2 \times 5}{{}^3\log 2^3} \\
 &= \frac{{}^3\log 3 + {}^3\log 2 + {}^3\log 5}{3 \cdot {}^3\log 2} \\
 &= \frac{1 + \frac{1}{p} + q}{\frac{3}{p}} \\
 &= \frac{p + 1 + pq}{3} \\
 &= \frac{p + 1 + pq}{p} \times \frac{p}{3} \\
 &= \frac{1}{3}(p + 1 + pq)
 \end{aligned}$$