

ابسط :

$$\begin{aligned}A &= \sqrt{27} + \sqrt{12} \\ &= \sqrt{3^2 \times 3} + \sqrt{2^2 \times 3} \\ &= 3\sqrt{3} + 2\sqrt{3} \\ &= (3 + 2)\sqrt{3}\end{aligned}$$

$$\boxed{A = 5\sqrt{3}}$$

$$\begin{aligned}B &= \sqrt{25} + \sqrt{81} - 2\sqrt{9} \\ &= \sqrt{5^2} + \sqrt{9^2} - 2\sqrt{3^2} \\ &= 5 + 9 - 2 \times 3 \\ &= 14 - 6\end{aligned}$$

$$\boxed{B = 8}$$

$$\begin{aligned}
 C &= \sqrt{45} + \sqrt{20} \\
 &= \sqrt{3^2 \times 5} + \sqrt{2^2 \times 5} \\
 &= 3\sqrt{5} + 2\sqrt{5} \\
 &= (3 + 2)\sqrt{5}
 \end{aligned}$$

$$\boxed{C = 5\sqrt{5}}$$

$$E = \frac{2\sqrt{45} - 3\sqrt{80} + 4\sqrt{5}}{10\sqrt{20}}$$

$$\sqrt{45} = \sqrt{3^2 \times 5} = 3\sqrt{5}$$

لدينا:

$$\sqrt{80} = \sqrt{4^2 \times 5} = 4\sqrt{5}$$

و:

$$\sqrt{20} = \sqrt{2^2 \times 5} = 2\sqrt{5}$$

و:

$$E = \frac{2\sqrt{45} - 3\sqrt{80} + 4\sqrt{5}}{10\sqrt{20}}$$

إذن:

$$= \frac{2 \times 3\sqrt{5} - 3 \times 4\sqrt{5} + 4\sqrt{5}}{10 \times 2\sqrt{5}}$$

$$= \frac{(6 - 12 + 4)\sqrt{5}}{20\sqrt{5}}$$

$$= \frac{-2\sqrt{5}}{20\sqrt{5}}$$

$$\boxed{E = -\frac{1}{10}}$$

$$F = \sqrt{\frac{7}{3}} + 3\sqrt{\frac{28}{27}} - 4\sqrt{\frac{63}{75}}$$

$$\sqrt{\frac{28}{27}} = \sqrt{\frac{4}{9} \times \frac{7}{3}} = \sqrt{\left(\frac{2}{3}\right)^2 \times \frac{7}{3}} = \frac{2}{3}\sqrt{\frac{7}{3}}$$

دينا:

$$\sqrt{\frac{63}{75}} = \sqrt{\frac{9}{25} \times \frac{7}{3}} = \sqrt{\left(\frac{3}{5}\right)^2 \times \frac{7}{3}} = \frac{3}{5}\sqrt{\frac{7}{3}}$$

و:

$$F = \sqrt{\frac{7}{3}} + 3\sqrt{\frac{28}{27}} - 4\sqrt{\frac{63}{75}}$$

إذن:

$$= \sqrt{\frac{7}{3}} + 3 \times \frac{2}{3}\sqrt{\frac{7}{3}} - 4 \times \frac{3}{5}\sqrt{\frac{7}{3}}$$

$$= \left(1 + 2 - \frac{12}{5}\right)\sqrt{\frac{7}{3}}$$

$$= \left(\frac{5 + 10 - 12}{5}\right)\sqrt{\frac{7}{3}}$$

$$\boxed{F = \frac{3}{5}\sqrt{\frac{7}{3}}}$$

$$G = \sqrt{\frac{16}{28}} - \sqrt{\frac{125}{35}} - \sqrt{\frac{25}{7}}$$

$$\sqrt{\frac{16}{28}} = \sqrt{\frac{4 \times 4}{4 \times 7}} = \sqrt{\frac{4}{7}} = \frac{2}{\sqrt{7}}$$

$$\sqrt{\frac{125}{35}} = \sqrt{\frac{25 \times 5}{7 \times 5}} = \sqrt{\frac{25}{7}} = \frac{5}{\sqrt{7}}$$

$$G = \frac{2}{\sqrt{7}} - \frac{5}{\sqrt{7}} - \frac{5}{\sqrt{7}}$$

$$= \frac{2 - 5 - 5}{\sqrt{7}} = \frac{-8}{\sqrt{7}} = \frac{-8\sqrt{7}}{7}$$

$$\boxed{G = \frac{-8\sqrt{7}}{7}}$$

$$D = \sqrt{96} + 2\sqrt{6} - 2\sqrt{24} - 3\sqrt{54}$$

$$\sqrt{96} = \sqrt{16 \times 6} = \sqrt{4^2 \times 6} = 4\sqrt{6} \quad \text{لدينا:}$$

$$\sqrt{24} = \sqrt{4 \times 6} = 2\sqrt{6} \quad \text{: و}$$

$$\sqrt{54} = \sqrt{9 \times 6} = \sqrt{3^2 \times 6} = 3\sqrt{6} \quad \text{: و}$$

$$D = 4\sqrt{6} + 2\sqrt{6} - 2 \times 2\sqrt{6} - 3 \times 3\sqrt{6} \quad \text{إذن:}$$

$$= (4 + 2 - 4 - 9)\sqrt{6}$$

$$\boxed{D = -7\sqrt{6}}$$

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