



1. Simplify $\frac{\sqrt{5}}{(-\sqrt{4}-\sqrt{3})} - \frac{(-\sqrt{4})}{(-\sqrt{4}+\sqrt{3})} + \frac{\sqrt{5}}{(\sqrt{2}+\sqrt{5})}$

(i) $(-2\sqrt{5}+\sqrt{15}-\frac{7}{3}-2\sqrt{3}-\frac{1}{3}\sqrt{10})$ (ii) $(-2\sqrt{2}+\sqrt{15}-\frac{7}{3}-2\sqrt{3}-\frac{1}{3}\sqrt{10})$ (iii) $(-2\sqrt{5}+\sqrt{15}-\frac{7}{5}-2\sqrt{3}-\frac{1}{3}\sqrt{10})$

(iv) $(-2\sqrt{5}+\sqrt{15}-\frac{7}{3}-2\sqrt{6}-\frac{1}{3}\sqrt{10})$ (v) $(-2\sqrt{5}+\sqrt{15}-\frac{7}{3}-2\sqrt{3}-\frac{1}{3}\sqrt{10})$

2. Simplify $\frac{\sqrt{7}}{(\sqrt{4}+\sqrt{3})} - \frac{\sqrt{7}}{(-\sqrt{2}+\sqrt{7})} + \frac{\sqrt{5}}{(-\sqrt{6}-\sqrt{9})}$

(i) $(2\sqrt{7}-\sqrt{21}-\frac{1}{5}\sqrt{14}-1+\frac{1}{3}\sqrt{30}-\sqrt{5})$ (ii) $(2\sqrt{5}-\sqrt{21}-\frac{1}{5}\sqrt{14}-\frac{7}{5}+\frac{1}{3}\sqrt{30}-\sqrt{5})$

(iii) $(2\sqrt{7}-\sqrt{21}-\frac{1}{5}\sqrt{14}-\frac{7}{5}+\frac{1}{3}\sqrt{30}-\sqrt{5})$ (iv) $(2\sqrt{7}-\sqrt{21}-\frac{4}{5}\sqrt{14}-\frac{7}{5}+\frac{1}{3}\sqrt{30}-\sqrt{5})$

(v) $(2\sqrt{7}-\sqrt{21}-\frac{1}{5}\sqrt{14}-\frac{7}{5}+\frac{1}{3}\sqrt{30}-\sqrt{5})$

3. Simplify $\frac{(-\sqrt{4})}{(\sqrt{5}+\sqrt{3})} - \frac{(-\sqrt{2})}{(-\sqrt{3}+\sqrt{5})} + \frac{\sqrt{4}}{(\sqrt{5}-\sqrt{2})}$

(i) $(-\frac{1}{3}\sqrt{5}+\sqrt{3}+\frac{1}{2}\sqrt{6}+\frac{1}{2}\sqrt{10}+\frac{2}{3}\sqrt{2})$ (ii) $(-\frac{1}{3}\sqrt{5}+\sqrt{3}+\frac{1}{2}\sqrt{6}+\frac{1}{2}\sqrt{10}+\frac{2}{3}\sqrt{2})$

(iii) $(-\frac{1}{3}\sqrt{5}+\sqrt{3}+\frac{4}{2}\sqrt{6}+\frac{1}{2}\sqrt{10}+\frac{2}{3}\sqrt{2})$ (iv) $(-\frac{1}{3}\sqrt{2}+\sqrt{3}+\frac{1}{2}\sqrt{6}+\frac{1}{2}\sqrt{10}+\frac{2}{3}\sqrt{2})$

(v) $(-\frac{1}{3}\sqrt{5}+\sqrt{3}+\frac{1}{2}\sqrt{6}+\frac{1}{2}\sqrt{13}+\frac{2}{3}\sqrt{2})$

4. Simplify $\frac{\sqrt{3}}{(\sqrt{8}-\sqrt{9})} - \frac{\sqrt{4}}{(\sqrt{5}+\sqrt{8})} + \frac{(-\sqrt{6})}{(\sqrt{6}-\sqrt{8})}$

(i) $(-2\sqrt{6}-\sqrt{3}+\frac{2}{3}\sqrt{5}-\frac{4}{3}\sqrt{2}+3)$ (ii) $(-2\sqrt{4}-\sqrt{3}+\frac{2}{3}\sqrt{5}-\frac{4}{3}\sqrt{2}+3)$ (iii) $(-2\sqrt{6}-\sqrt{3}+\frac{2}{3}\sqrt{5}-\frac{4}{3}\sqrt{2}+3)$

(iv) $(-2\sqrt{6}-\sqrt{3}+\frac{2}{3}\sqrt{5}-\frac{4}{3}\sqrt{2}+3)$ (v) $(-2\sqrt{6}-\sqrt{3}+\frac{2}{3}\sqrt{5}-\frac{4}{3}\sqrt{5}+3)$

5. Simplify $\frac{\sqrt{4}}{(-\sqrt{3}-\sqrt{2})} + \frac{\sqrt{4}}{(\sqrt{3}+\sqrt{4})} - \frac{(-\sqrt{4})}{(-\sqrt{4}-\sqrt{5})}$

- (i) $(-4+2\sqrt{2}+8-2\sqrt{5})$ (ii) $(-4\sqrt{3}+2\sqrt{2}+8-2\sqrt{5})$ (iii) $(-4\sqrt{3}+2\sqrt{2}+8-2\sqrt{5})$ (iv) $(-4\sqrt{3}+2\sqrt{2}+9-2\sqrt{5})$
 (v) $(-4\sqrt{3}+2\sqrt{2}+8-2\sqrt{7})$

6. Simplify $\frac{\sqrt{7}}{(-\sqrt{5}-\sqrt{4})} - \frac{(-\sqrt{7})}{(\sqrt{5}+\sqrt{4})} - \frac{\sqrt{4}}{(\sqrt{6}-\sqrt{9})}$

- (i) $(\frac{2}{3}\sqrt{4}+2)$ (ii) $(\frac{2}{3}\sqrt{6}+1)$ (iii) $(\frac{2}{3}\sqrt{6}+2)$ (iv) $(\frac{2}{3}\sqrt{6}+3)$ (v) $(\frac{2}{3}\sqrt{8}+2)$

7. Simplify $\frac{\sqrt{2}}{(-\sqrt{5}-\sqrt{2})} + \frac{\sqrt{2}}{(-\sqrt{5}-\sqrt{3})} + \frac{\sqrt{2}}{(-\sqrt{3}+\sqrt{5})}$

- (i) $(-\frac{1}{3}\sqrt{10}+\frac{4}{3}+\sqrt{6})$ (ii) $(-\frac{1}{3}\sqrt{10}+0+\sqrt{6})$ (iii) $(-\frac{1}{3}\sqrt{10}+\frac{2}{3}+\sqrt{6})$ (iv) $(-\frac{1}{3}\sqrt{10}+\frac{2}{3}+6)$
 (v) $(-\frac{1}{3}\sqrt{10}+\frac{2}{3}+\sqrt{6})$

8. Simplify $\frac{\sqrt{3}}{(\sqrt{2}+\sqrt{6})} + \frac{(-\sqrt{6})}{(-\sqrt{7}+\sqrt{5})} + \frac{(-\sqrt{7})}{(-\sqrt{4}+\sqrt{5})}$

- (i) $(-\frac{1}{4}\sqrt{3}+\frac{1}{4}\sqrt{18}+\frac{1}{2}\sqrt{42}+\frac{1}{2}\sqrt{30}-2\sqrt{7}-\sqrt{35})$ (ii) $(-\frac{1}{4}\sqrt{6}+\frac{1}{4}\sqrt{18}+\frac{1}{2}\sqrt{42}+\frac{1}{2}\sqrt{30}-2\sqrt{7}-\sqrt{35})$
 (iii) $(-\frac{1}{4}\sqrt{6}+\frac{1}{4}\sqrt{18}+\frac{1}{2}\sqrt{42}+\frac{1}{2}\sqrt{30}-2\sqrt{7}-\sqrt{35})$ (iv) $(-\frac{1}{4}\sqrt{6}+\frac{1}{4}\sqrt{18}+\frac{1}{2}\sqrt{42}+\frac{1}{2}\sqrt{30}-2\sqrt{7}-\sqrt{35})$
 (v) $(-\frac{1}{4}\sqrt{6}+\frac{1}{4}\sqrt{18}+\frac{1}{2}\sqrt{42}+\frac{1}{2}\sqrt{33}-2\sqrt{7}-\sqrt{35})$

9. Simplify $\frac{\sqrt{2}}{(-\sqrt{4}-\sqrt{2})} - \frac{\sqrt{3}}{(\sqrt{3}-\sqrt{5})} - \frac{\sqrt{3}}{(\sqrt{3}+\sqrt{2})}$

- (i) $(-\sqrt{2}-\frac{1}{2}+\frac{1}{2}\sqrt{15}+\sqrt{9})$ (ii) $(-\sqrt{2}-\frac{1}{4}+\frac{1}{2}\sqrt{15}+\sqrt{6})$ (iii) $(-\sqrt{2}-\frac{1}{2}+\frac{1}{2}\sqrt{15}+\sqrt{6})$
 (iv) $(-\sqrt{-1}-\frac{1}{2}+\frac{1}{2}\sqrt{15}+\sqrt{6})$ (v) $(-\sqrt{2}-\frac{1}{2}+\frac{1}{2}\sqrt{15}+\sqrt{6})$

10. Simplify $\frac{(-\sqrt{4})}{(-\sqrt{9}+\sqrt{6})} + \frac{(-\sqrt{5})}{(-\sqrt{2}+\sqrt{4})} + \frac{\sqrt{8}}{(2\sqrt{2}+\sqrt{4})}$

(i) $(4 + \frac{2}{3}\sqrt{6} - \frac{1}{2}\sqrt{10} - \sqrt{8} - \sqrt{2})$ (ii) $(4 + \frac{2}{3}\sqrt{6} - \frac{1}{2}\sqrt{10} - \sqrt{5} - \sqrt{2})$ (iii) $(4 + \frac{2}{3}\sqrt{6} - \frac{1}{2}\sqrt{10} - \sqrt{5} - \sqrt{2})$

(iv) $(2 + \frac{2}{3}\sqrt{6} - \frac{1}{2}\sqrt{10} - \sqrt{5} - \sqrt{2})$ (v) $(4 + \frac{2}{3}\sqrt{6} - \frac{1}{2}\sqrt{10} - \sqrt{5} - \sqrt{2})$

Assignment Key

1) (v)

2) (v)

3) (ii)

4) (i)

5) (iii)

6) (iii)

7) (v)

8) (iii)

9) (v)

10) (v)