

34. Simplify $\sqrt[4]{81} - 8(\sqrt[3]{216}) + 15(\sqrt[3]{32}) + \sqrt{225}$.

NCERT Exemplar

35. Simplify the expression

$$\frac{2\sqrt{30}}{\sqrt{6}} - \frac{3\sqrt{140}}{\sqrt{28}} + \frac{\sqrt{55}}{\sqrt{99}}$$

36. Rationalise the denominator of

$$\frac{2\sqrt{6} - \sqrt{5}}{3\sqrt{5} - 2\sqrt{6}}$$

37. **HOTS** Simplify $\frac{2\sqrt{3} - 1}{(\sqrt{3} - 1)^2 - 4}$ and then express it with rational denominator.

Long Answer Type Questions

38. Find a and b , if

$$\frac{5 + 2\sqrt{3}}{7 + 4\sqrt{3}} = a + b\sqrt{3}.$$

39. Rationalise the denominator of $\frac{1}{\sqrt{7} + \sqrt{6} - \sqrt{13}}$.

40. If $a = \frac{\sqrt{3} - \sqrt{2}}{\sqrt{3} + \sqrt{2}}$ and $b = \frac{\sqrt{3} + \sqrt{2}}{\sqrt{3} - \sqrt{2}}$, find the value of $a^2 + b^2 - 5ab$.

[4 Marks each]

41. Simplify $\frac{3^{30} + 3^{29} + 3^{28}}{3^{31} + 3^{30} - 3^{29}} + \frac{2^{30} + 2^{29} + 2^{28}}{2^{31} + 2^{30} - 2^{29}}$.

42. Simplify the following.

$$\frac{2}{\sqrt{5} + \sqrt{3}} + \frac{1}{\sqrt{3} + \sqrt{2}} - \frac{3}{\sqrt{5} + \sqrt{2}}$$

43. If $a = \frac{3^{x-2}}{3^{x-5}}$, $b = \frac{3^x}{3^{-x-2}}$ and $a - b = 0$, find the value of x .

44. **HOTS** If $3^a = 5^{-b} = 15^c$, then prove that $\frac{1}{a} - \frac{1}{b} - \frac{1}{c} = 0$.