

$2\sqrt{5}$

1 4 9 16 25 36 49 64 81

$$\#8) \sqrt{24} = \sqrt{4 \cdot 6} = 2\sqrt{6}$$

$\swarrow \sqrt{4} = 2$

$$\sqrt{36} = 6$$

$$\#11 \quad \sqrt{80} = \sqrt{16 \cdot 5} = 4\sqrt{5}$$

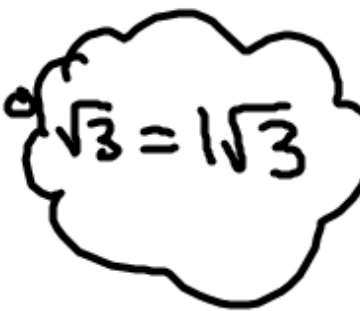
$$\#20 \quad \sqrt{99} = \sqrt{9 \cdot 11} = 3\sqrt{11}$$

Operations with Radicals

Add/Sub like radicals only

Example:

① $5\sqrt{2} + 7\sqrt{2} - 2\sqrt{2} = 10\sqrt{2}$

② $5\sqrt{2} - 4\sqrt{3} + 8\sqrt{2} + \sqrt{3}$ 

$= 13\sqrt{2} - 3\sqrt{3}$

③ $3\sqrt{2} + 7\sqrt{5} = 3\sqrt{2} + 7\sqrt{5}$

$$\begin{aligned} \textcircled{4} \quad & \sqrt{20} + 3\sqrt{5} - \sqrt{5} \\ & = \sqrt{20} + 2\sqrt{5} \\ & = \sqrt{4 \cdot 5} + 2\sqrt{5} \\ & = 2\sqrt{5} + 2\sqrt{5} \\ & = 4\sqrt{5} \end{aligned}$$

* simplify first then add/sub

$$\textcircled{5} \quad 5\sqrt{50} - 6\sqrt{3} + 8\sqrt{3} - 4\sqrt{12}$$

$$= 5\sqrt{\textcircled{25} \cdot 2} - 6\sqrt{3} + 8\sqrt{3} - 4\sqrt{\textcircled{4} \cdot 3}$$

$$= 5 \cdot 5 \sqrt{2} - 6\sqrt{3} + 8\sqrt{3} - 4 \cdot 2 \cdot \sqrt{3}$$

$$= 25\sqrt{2} - 6\sqrt{3} + 8\sqrt{3} - 8\sqrt{3}$$

$$= 25\sqrt{2} - 6\sqrt{3}$$

$$\begin{aligned} \textcircled{6} \quad & 7\sqrt{32} - \sqrt{16} + 2\sqrt{2} + 1 \\ & = 7\sqrt{16 \cdot 2} - 4 + 2\sqrt{2} + 1 \\ & = 7 \cdot 4\sqrt{2} - 4 + 2\sqrt{2} + 1 \\ & = 28\sqrt{2} + 2\sqrt{2} - 4 + 1 \\ & = 30\sqrt{2} - 3 \end{aligned}$$