$2\sqrt{5}$

1 4 9 16 25 36 49 64 81

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

$\sqrt{4} = 2$

$\sqrt{36} = 6$

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

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

Operations with Radicals

Add/Sub like radicals only

Example:

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

② $5\sqrt{2} - 4\sqrt{3} + 8\sqrt{2} + \sqrt{3}$ ∴ $\sqrt{3} = 1\sqrt{3}$

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

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

④ $\sqrt{20} + 3\sqrt{5} - \sqrt{5}$

$= \sqrt{20} + 2\sqrt{5}$

$= \sqrt{4 \cdot 5} + 2\sqrt{5}$

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

$= 4\sqrt{5}$

* simplify first then add/sub

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

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

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

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

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

⑥ $7\sqrt{32} - \sqrt{16} + 2\sqrt{2} + 1$

$= 7\sqrt{16 \cdot 2} - 4 + 2\sqrt{2} + 1$

$= 7 \cdot 4\sqrt{2} - 4 + 2\sqrt{2} + 1$

$= 28\sqrt{2} + 2\sqrt{2} - 4 + 1$

$= 30\sqrt{2} - 3$