

Review - Add/Subtracting & Multiplying Radicals

Simplify.

1) $\sqrt{100} = \boxed{10}$

2) $\sqrt{54}$
 $\begin{matrix} \wedge \\ 9 & 6 \\ \text{A} \\ \textcircled{33} \end{matrix}$ $\boxed{3\sqrt{6}}$

3) $\sqrt{64} = \boxed{8}$

4) $\sqrt{288}$
 $\begin{matrix} \wedge \\ 2 & 144 \\ \text{A} \\ \textcircled{1212} \end{matrix}$ $\boxed{12\sqrt{2}}$

5) $\sqrt{128}$
 $\begin{matrix} \wedge \\ 64 & 2 \\ \text{A} \\ \textcircled{88} \end{matrix}$ $\boxed{8\sqrt{2}}$

6) $\sqrt{384}$
 $\begin{matrix} \wedge \\ 4 & 96 \\ \text{A} \\ \textcircled{4} \end{matrix}$ $\begin{matrix} \wedge \\ 24 & 4 \\ \text{A} \\ \textcircled{32} \end{matrix}$ $\boxed{8\sqrt{6}}$

7) $2\sqrt{8} - 3\sqrt{6} - 3\sqrt{6}$
 $2\sqrt{8} - 6\sqrt{6}$
 $\begin{matrix} \wedge \\ \uparrow 4 & 2 \\ \text{A} \\ \textcircled{22} \end{matrix}$ $\boxed{4\sqrt{2} - 6\sqrt{6}}$

8) $2\sqrt{54} + 3\sqrt{54} - 3\sqrt{18}$
 $5\sqrt{54} - 3\sqrt{18} < 9\sqrt{6}$
 $\begin{matrix} \wedge \\ \uparrow 9 & 6 \\ \text{A} \\ \textcircled{33} \end{matrix}$ $\textcircled{32}$
 $\boxed{15\sqrt{6} - 9\sqrt{2}}$

9) $2\sqrt{6} - 3\sqrt{8} - 2\sqrt{2}$
 $\begin{matrix} \wedge \\ \uparrow 4 & 2 \\ \text{A} \\ \textcircled{22} \end{matrix}$
 $2\sqrt{6} - 6\sqrt{2} - 2\sqrt{2}$
 $\boxed{2\sqrt{6} - 8\sqrt{2}}$

10) $-2\sqrt{24} - 3\sqrt{2} - 2\sqrt{6}$
 $\begin{matrix} \wedge \\ \uparrow 4 & 6 \\ \text{A} \\ \textcircled{22} \end{matrix}$
 $-4\sqrt{6} - 3\sqrt{2} - 2\sqrt{6}$
 $\boxed{-6\sqrt{6} - 3\sqrt{2}}$

-1-

$$11) -\sqrt{6} - 3\sqrt{18} - 2\sqrt{2}$$

$$\begin{array}{c} \uparrow 2 \\ 9 \cdot 3 \\ \textcircled{33} \end{array}$$

$$-\sqrt{6} - 9\sqrt{2} - 2\sqrt{2}$$

$$\boxed{-\sqrt{6} - 11\sqrt{2}}$$

$$12) 2\sqrt{27} - 2\sqrt{3} + 3\sqrt{6}$$

$$\begin{array}{c} \uparrow 3 \\ 9 \cdot 3 \\ \textcircled{33} \end{array}$$

$$6\sqrt{3} - 2\sqrt{3} + 3\sqrt{6}$$

$$\boxed{4\sqrt{3} + 3\sqrt{6}}$$

$$13) -\sqrt{2} \cdot \sqrt{5}$$

$$\boxed{-\sqrt{10}}$$

$$14) -5\sqrt{2} \cdot \sqrt{5}$$

$$\boxed{-5\sqrt{10}}$$

$$15) 2\sqrt{15}(5 + \sqrt{5})$$

$$10\sqrt{15} + 2\sqrt{75}$$

$$\begin{array}{c} \uparrow 25 \cdot 3 \\ 5 \cdot 5 \\ \textcircled{55} \end{array}$$

$$\boxed{10\sqrt{15} + 10\sqrt{3}}$$

$$16) \sqrt{5}(4 + \sqrt{5})$$

$$4\sqrt{5} + \sqrt{25}$$

$$\boxed{5 + 4\sqrt{5}}$$

$$17) -2\sqrt{10}(\sqrt{10} + \sqrt{2})$$

$$-2\sqrt{100} - 2\sqrt{20} < \frac{4}{5} < \textcircled{\frac{2}{2}}$$

$$\boxed{-20 - 4\sqrt{5}}$$

$$18) (\sqrt{3} - 4)(\sqrt{3} - 3)$$

$$\sqrt{3}^3 - 3\sqrt{3} - 4\sqrt{3} + 12$$

$$\boxed{15 - 7\sqrt{3}}$$

$$19) (\sqrt{5} - 4\sqrt{2})(-5\sqrt{5} + \sqrt{2})$$

$$-5\sqrt{25} + \sqrt{10} + 20\sqrt{10} - 4\sqrt{4}$$

$$-25 + 21\sqrt{10} - 8$$

$$\boxed{-33 + 21\sqrt{10}}$$

$$20) (\sqrt{3} + \sqrt{8})^2$$

$$(\sqrt{3} + \sqrt{8})(\sqrt{3} + \sqrt{8})$$

$$3\sqrt{1} + \sqrt{24} + \sqrt{24} + \sqrt{64}$$

$$11 + 2\sqrt{24} < \frac{4}{6} < \textcircled{\frac{2}{2}}$$

$$\boxed{11 + 4\sqrt{6}}$$