

AA PREP: OPERATIONS WITH RADICALS (MULTIPLYING) — WORKSHEET #2

Perform the operation. Simplify.

$$1) \sqrt{3} \cdot \sqrt{3}$$

$$\sqrt{3 \cdot 3}$$

$$\boxed{3}$$

$$2) \sqrt{6} \cdot \sqrt{6}$$

$$\sqrt{6 \cdot 6}$$

$$\boxed{6}$$

$$3) \sqrt{50} \sqrt{10}$$

$$\sqrt{50 \cdot 10}$$

$$\begin{matrix} \textcircled{5} & \textcircled{10} \\ \nearrow & \searrow \end{matrix}$$

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

$$4) \sqrt{24} \sqrt{12}$$

$$\sqrt{24 \cdot 12}$$

$$\begin{matrix} \textcircled{2} & \textcircled{12} \\ \nearrow & \searrow \end{matrix}$$

$$\boxed{12\sqrt{2}}$$

$$5) -\sqrt{14} \cdot 2\sqrt{21}$$

$$-1 \cdot \sqrt{14} \cdot 2 \cdot \sqrt{21}$$

$$-1 \cdot 2 \cdot \sqrt{14 \cdot 21}$$

$$\begin{matrix} \textcircled{2} & \textcircled{7} & \textcircled{7} & \textcircled{3} \\ \nearrow & \nearrow & \searrow & \searrow \end{matrix}$$

$$-1 \cdot 2 \cdot 7 \cdot \sqrt{2 \cdot 3}$$

$$\boxed{-14\sqrt{6}}$$

$$6) 3\sqrt{52} \cdot 5\sqrt{26}$$

$$3 \cdot \sqrt{52} \cdot 5 \cdot \sqrt{26}$$

$$3 \cdot 5 \cdot \sqrt{52 \cdot 26}$$

$$\begin{matrix} \textcircled{2} & \textcircled{26} \\ \nearrow & \searrow \end{matrix}$$

$$3 \cdot 5 \cdot 26 \sqrt{2}$$

$$\boxed{390\sqrt{2}}$$

$$7) (6\sqrt{2})^2$$

$$6\sqrt{2} \cdot 6\sqrt{2}$$

$$6 \cdot \sqrt{2} \cdot 6 \cdot \sqrt{2}$$

$$6 \cdot 6 \cdot \sqrt{2 \cdot 2}$$

$$6 \cdot 6 \cdot 2$$

$$\boxed{72}$$

$$8) (4\sqrt{3})^2$$

$$4\sqrt{3} \cdot 4\sqrt{3}$$

$$4 \cdot \sqrt{3} \cdot 4 \cdot \sqrt{3}$$

$$4 \cdot 4 \cdot \sqrt{3 \cdot 3}$$

$$4 \cdot 4 \cdot 3$$

$$\boxed{48}$$

$$9) \sqrt{2}(10 + \sqrt{20} - 3\sqrt{8})$$

$$10\sqrt{2} + \sqrt{2 \cdot 20} - 3\sqrt{2 \cdot 8}$$

$$\begin{matrix} \textcircled{2} & \textcircled{10} \\ \nearrow & \searrow \end{matrix} \quad \begin{matrix} \textcircled{2} & \textcircled{4} \\ \nearrow & \searrow \end{matrix}$$

$$10\sqrt{2} + 2\sqrt{2 \cdot 5} - 12$$

$$\begin{matrix} 3 \cdot 2 \cdot 2 \\ 12 \end{matrix}$$

$$\boxed{10\sqrt{2} + 2\sqrt{10} - 12}$$

$$10) (4 + \sqrt{5})(4 - \sqrt{5})$$

$$16 - 4\sqrt{5} + 4\sqrt{5} - 5$$

$$16 - 5$$

$$\boxed{11}$$

DOUBLE DISTRIBUTION OR FOIL "FIRST, INNER, INNER, LAST"