

8.2 Multiplying and Dividing Radicals

Multiplication:

① $\# \cdot \sqrt{\quad}$
 $3 \cdot \sqrt{6}$
 No!
 $\boxed{3\sqrt{6}}$

② $\sqrt{\quad} \cdot \sqrt{\quad}$
 $\sqrt{10} \cdot \sqrt{5}$
 YES!
 $\sqrt{50}$
 $\sqrt{25} \cdot \sqrt{2}$
 $\boxed{5\sqrt{2}}$

③ $\# \sqrt{\quad} \cdot \# \sqrt{\quad}$
 $4\sqrt{3} \cdot 2\sqrt{6}$
 YES!
 (combine like terms)
 $8 \cdot \sqrt{18}$
 $\sqrt{9} \cdot \sqrt{2}$
 $8 \cdot 3\sqrt{2}$
 $\boxed{24\sqrt{2}}$

Division:

① $\frac{\sqrt{\quad}}{\#}$
 $\frac{\sqrt{10}}{2}$
 No!

② $\frac{\sqrt{\quad}}{\sqrt{\quad}}$
 $\frac{\sqrt{10}}{\sqrt{2}} \rightarrow \sqrt{5}$
 YES!

* ③ $\frac{\#}{\sqrt{\quad}}$
 $\frac{10}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} \rightarrow \frac{10\sqrt{5}}{\sqrt{25}} \rightarrow \frac{10\sqrt{5}}{5} \rightarrow \boxed{2\sqrt{5}}$
 No! *
 *Rationalize
 no longer have a $\sqrt{\quad}$ in denominator

④ $\frac{\# \sqrt{\quad}}{\# \sqrt{\quad}}$
 $\frac{4\sqrt{3}}{10\sqrt{6}} \rightarrow \frac{2}{5\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} \rightarrow \frac{2\sqrt{2}}{5\sqrt{4}} \rightarrow \frac{2\sqrt{2}}{10} \rightarrow \boxed{\frac{\sqrt{2}}{5}}$
 YES!
 (combine like terms)
 Rationalize
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