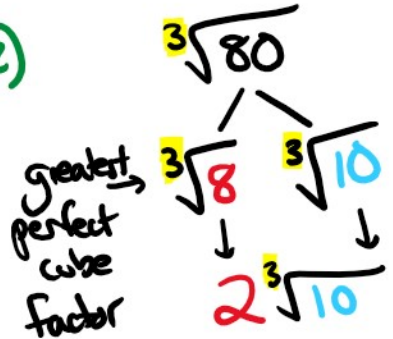
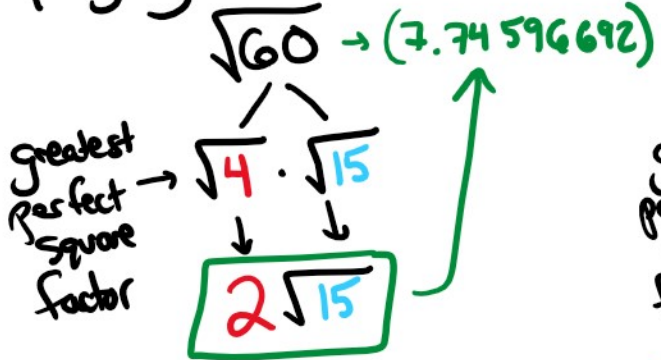


• Simplifying Radicals

1	60
2	30
3	20
4	15
5	12
6	10



1	80
2	40
3	26.666...
4	20
5	16
6	13.333...
7	11.428...
8	10

4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144

8, 27, 64, 125

• Combining Square Roots

Addition/Subtraction → square roots must match

$2x + 4x = 6x$ ← stays x

$2\sqrt{3} + 4\sqrt{10}$ ← DNS
different

$2\sqrt{3} + 4\sqrt{3} = 6\sqrt{3}$
same stays $\sqrt{3}$

$10\sqrt{3} - \sqrt{12}$

$10\sqrt{3} - 2\sqrt{3} = 8\sqrt{3}$
same stays $\sqrt{3}$

Multiplication/Division → mult/div #'s outside $\sqrt{\quad}$
's inside $\sqrt{\quad}$

$2x \cdot 3y = 6xy$

$\frac{8x}{2y} = \frac{4x}{y}$

$2\sqrt{5} \cdot 3\sqrt{10} = 6\sqrt{50}$
 $6\sqrt{25 \cdot 2}$

$\frac{\sqrt{32}}{\sqrt{2}} = \sqrt{16} = 4$



$$\begin{array}{l} \downarrow \\ 6 \cdot \sqrt{25} \cdot \sqrt{2} \\ \downarrow \\ 6 \cdot 5 \cdot \sqrt{2} \\ \hline 30\sqrt{2} \end{array}$$

$\sqrt{2}$

$$\sqrt{A \cdot B} \rightarrow \sqrt{A} \cdot \sqrt{B}$$

$$\sqrt{20} \rightarrow \sqrt{4 \cdot 5} \rightarrow \sqrt{4} \cdot \sqrt{5} \rightarrow 2\sqrt{5}$$

$$\sqrt{25x^2} \rightarrow \sqrt{25} \cdot \sqrt{x^2} \rightarrow 5x$$

$$\sqrt{\frac{A}{B}} \rightarrow \frac{\sqrt{A}}{\sqrt{B}}$$

$$\sqrt{\frac{25}{4}} \rightarrow \frac{\sqrt{25}}{\sqrt{4}} \rightarrow \frac{5}{2}$$

* DO NOT WORK FOR + / -

$$\sqrt{x^2 + 16} \neq \sqrt{x^2} + \sqrt{16} \quad \text{!!}$$

• Rationalizing the Denominator

* you may not have a $\sqrt{\quad}$ in denominator

$$\frac{2}{\sqrt{6}} \rightarrow \frac{2 \cdot \sqrt{6}}{\sqrt{6} \cdot \sqrt{6}} = \frac{2\sqrt{6}}{\sqrt{36}} \rightarrow \frac{2\sqrt{6}}{6} \rightarrow \frac{\sqrt{6}}{3}$$

\uparrow
0.816496581

multiply top + bottom
by the $\sqrt{\quad}$ from
the denominator