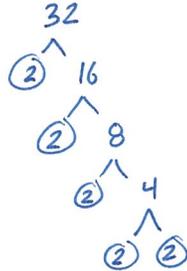


U01 - Mixed and Entire Radicals

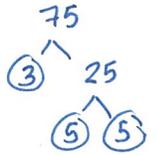
Part 1 - Entire to Mixed Radicals (Square Roots)

Q1: Convert the following to Mixed Radicals:

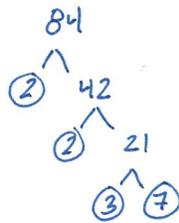
$$\begin{aligned} &\sqrt{32} \\ &\sqrt{2^2 \cdot 2^2 \cdot 2} \\ &2 \cdot 2 \cdot \sqrt{2} \\ &4\sqrt{2} \end{aligned}$$



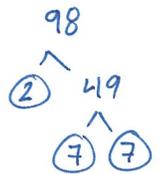
$$\begin{aligned} &\sqrt{75x^5} \\ &\sqrt{3 \cdot 5^2 \cdot x^2 \cdot x^2 \cdot x} \\ &5x \cdot \sqrt{3x} \\ &5x^2 \sqrt{3x} \end{aligned}$$



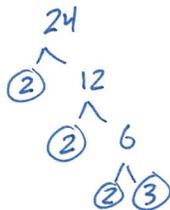
$$\begin{aligned} &\sqrt{84x^2y^7z} \\ &\sqrt{2^2 \cdot 3 \cdot 7 \cdot x^2 \cdot y^2 \cdot y^2 \cdot y^2 \cdot y \cdot z} \\ &2xyyy \sqrt{3 \cdot 7 \cdot y \cdot z} \\ &2xy^3 \sqrt{21yz} \end{aligned}$$



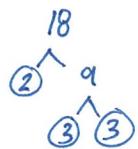
$$\begin{aligned} &\sqrt{98x^3y^4} \\ &\sqrt{2 \cdot 7^2 \cdot x^2 \cdot x \cdot y^2 \cdot y^2} \\ &7xyy \sqrt{2x} \\ &7xy^2 \sqrt{2x} \end{aligned}$$



$$\begin{aligned} &\sqrt{24x^5y^3z^4} \\ &\sqrt{2^2 \cdot 2 \cdot 3 \cdot x^2 \cdot x^2 \cdot x \cdot y^2 \cdot y \cdot z^2 \cdot z^2} \\ &2xxyyzz \sqrt{2 \cdot 3 \cdot x \cdot y} \\ &2x^2yz^2 \sqrt{6xy} \end{aligned}$$



$$\begin{aligned} &\sqrt{18x^2y^6} \\ &\sqrt{2 \cdot 3^2 \cdot x^2 \cdot y^2 \cdot y^2 \cdot y^2} \\ &3xyyy \sqrt{2} \\ &3xy^3 \sqrt{2} \end{aligned}$$



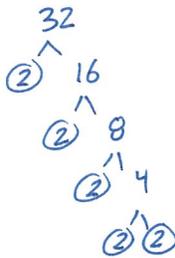
Part 2 – Entire to Mixed Radicals (Cube Roots)

Q2: Convert the following to Mixed Radicals:

$$\sqrt[3]{32}$$

$$\sqrt[3]{2^3 \cdot 2 \cdot 2}$$

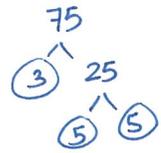
$$2\sqrt[3]{4}$$



$$\sqrt[3]{75x^5}$$

$$\sqrt[3]{3 \cdot 5 \cdot 5 \cdot x^3 \cdot x \cdot x}$$

$$x\sqrt[3]{75x^2}$$

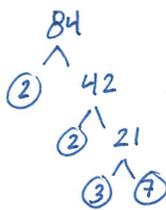


$$\sqrt[3]{84x^2y^7z}$$

$$\sqrt[3]{2 \cdot 2 \cdot 3 \cdot 7 \cdot x^2 \cdot y^3 \cdot y^3 \cdot y \cdot z}$$

$$y \cdot y \sqrt[3]{84x^2yz}$$

$$y^2 \sqrt[3]{84x^2yz}$$

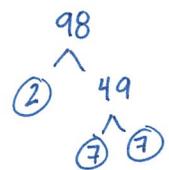


$$\sqrt[3]{98x^3y^4}$$

$$\sqrt[3]{2 \cdot 7 \cdot 7 \cdot x^3 \cdot y^3 \cdot y}$$

$$xy \sqrt[3]{2 \cdot 7 \cdot 7 \cdot y}$$

$$xy \sqrt[3]{98y}$$

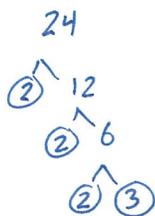


$$\sqrt[3]{24x^5y^3z^4}$$

$$\sqrt[3]{2^3 \cdot 3 \cdot x^3 \cdot x \cdot x \cdot y^3 \cdot z^3 \cdot z}$$

$$2xyz \sqrt[3]{3xz}$$

$$2xyz \sqrt[3]{3x^2z}$$

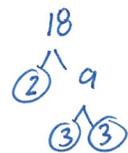


$$\sqrt[3]{18x^2y^6}$$

$$\sqrt[3]{2 \cdot 3 \cdot 3 \cdot x^2 \cdot y^3 \cdot y^3}$$

$$yy \sqrt[3]{2 \cdot 3 \cdot 3 \cdot x^2}$$

$$y^2 \sqrt[3]{18x^2}$$



Part 3 – Mixed to Entire Radicals

Q3: Convert the following Mixed Radicals to Entire Radicals:

$$5x^4 \sqrt[3]{3x^2}$$

$$\sqrt[3]{(5x^4)^3} \cdot \sqrt[3]{3x^2}$$

$$\sqrt[3]{125x^{12}} \cdot \sqrt[3]{3x^2}$$

$$\sqrt[3]{375x^{14}}$$

$$2x^7y^3 \sqrt{5x}$$

$$\sqrt{(2x^7y^3)^2} \cdot \sqrt{5x}$$

$$\sqrt{4x^{14}y^6} \cdot \sqrt{5x}$$

$$\sqrt{20x^{15}y^6}$$

$$3x \sqrt{5x}$$

$$\sqrt{(3x)^2} \cdot \sqrt{5x}$$

$$\sqrt{9x^2} \cdot \sqrt{5x}$$

$$\sqrt{45x^3}$$

$$3x^2y \sqrt[3]{5xy^2}$$

$$\sqrt[3]{(3x^2y)^3} \cdot \sqrt[3]{5xy^2}$$

$$\sqrt[3]{27x^6y^3} \cdot \sqrt[3]{5xy^2}$$

$$\sqrt[3]{135x^7y^5}$$

Part 4 – Back and Forth

Q4: Using $\sqrt{75x^4y^3z^2} \dots$

Convert it to a Mixed Radical

$$\sqrt{3 \cdot 5^2 \cdot x^2 \cdot x^2 \cdot y^2 \cdot y \cdot z^2}$$

$$5xy^2 \sqrt{3y}$$

$$5x^2y^2 \sqrt{3y}$$

$$\begin{array}{c} 75 \\ \textcircled{3} \uparrow 25 \\ \textcircled{5} \uparrow \textcircled{5} \end{array}$$

Now convert it back to an Entire Radical

$$\sqrt{(5x^2yz)^2} \cdot \sqrt{3y}$$

$$\sqrt{25x^4y^2z^2} \cdot \sqrt{3y}$$

$$\sqrt{75x^4y^3z^2}$$