

Round Robin Activity

Simplify each expression completely

Problem	Solution
$\sqrt{147}$	$\sqrt{49} \sqrt{3} = \boxed{7\sqrt{3}}$
$2\sqrt[3]{128} - 3\sqrt[3]{16}$	$2\sqrt[3]{64} \sqrt[3]{2} - 3\sqrt[3]{8} \sqrt[3]{2}$ $2 \cdot 4 \sqrt[3]{2} - 3 \cdot 2 \sqrt[3]{2}$ $8 \sqrt[3]{2} - 6 \sqrt[3]{2} \quad \boxed{2\sqrt[3]{2}}$
$\sqrt[4]{32x^9y^4}$	$\begin{array}{ccccc} \sqrt[4]{16} & \sqrt[4]{2} & \sqrt[4]{x^8} & \sqrt[4]{x} & \sqrt[4]{y^4} \\ \downarrow & & \downarrow & & \downarrow \\ 2 & & x^2 & & y \end{array}$ $\boxed{2x^2y\sqrt[4]{2x}}$
$\frac{\sqrt{24x^4}}{\sqrt{3x}}$	$\sqrt{\frac{24x^4}{3x}} = \sqrt{8x^3} = \sqrt{4} \sqrt{2} \sqrt{x^2} \sqrt{x}$ $\begin{array}{ccc} \downarrow & & \downarrow \\ 2 & & x \end{array}$ $\boxed{2x\sqrt{2x}}$
$16^{-\frac{5}{3}}$	$\frac{1}{16^{\frac{5}{3}}} = \frac{1}{(\sqrt[3]{16})^5} = \frac{1}{(2\sqrt[3]{2})^5} = \frac{1}{2^5 \sqrt[3]{2^5}}$ $= \frac{1}{32 \sqrt[3]{32}} = \frac{1}{32 \cdot \sqrt[3]{8} \sqrt[3]{4}} = \boxed{\frac{1}{64\sqrt[3]{4}}}$
$(125x^9y^6)^{\frac{1}{3}}$	$5x^3y^2$
$\frac{x^{\frac{3}{5}}y^2}{xy^{\frac{1}{3}}}$	$x^{\frac{3}{5}-1} y^{2-(-\frac{1}{3})}$ $\boxed{\frac{y^{\frac{7}{3}}}{x^{\frac{2}{5}}}}$
$\sqrt[3]{x^2} \cdot \sqrt[4]{x^3}$	$x^{\frac{2}{3}} \cdot x^{\frac{3}{4}}$ $\boxed{x^{\frac{17}{12}}}$

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$\sqrt{50}$	$\sqrt{25} \sqrt{2}$ $\boxed{5\sqrt{2}}$
$\sqrt{37+12}$	$\sqrt{49}$ $\boxed{7}$
$\sqrt[3]{54x^6y^{10}}$	$\sqrt[3]{27} \sqrt[3]{2} \quad \sqrt[3]{x^6} \sqrt[3]{y^9} \sqrt[3]{y}$ $\downarrow \quad \downarrow \quad \downarrow$ $3 \quad x^2 \quad y^3$ $\boxed{3x^2 y^3 \sqrt[3]{2y}}$
$\frac{\sqrt{200x^3}}{\sqrt{10x^{-1}}}$	$\sqrt{\frac{200x^3}{10x^{-1}}} = \sqrt{20x^4} \quad \sqrt{4} \sqrt{5} \sqrt{x^4}$ $\boxed{2x^2 \sqrt{5}}$
$125^{\frac{2}{3}}$	$(\sqrt[3]{125})^2 = 5^2$ $\boxed{25}$
$(169x^4y^6)^{\frac{1}{2}}$	$13x^2y^3$
$\frac{3x^{\frac{1}{4}}y^2}{2xy^{\frac{1}{2}}}$	$\frac{3y^{\frac{5}{2}}}{2x^{\frac{3}{4}}}$
$\sqrt[4]{x^5} \cdot \sqrt[5]{x^2}$	$x^{\frac{5}{4}} \cdot x^{\frac{2}{5}}$ $\boxed{x^{\frac{33}{20}}}$

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$\sqrt[3]{32x^4}$	$\begin{array}{cccc} \sqrt[3]{8} & \sqrt[3]{4} & \sqrt[3]{x^3} & \sqrt[3]{x} \\ \downarrow & & \downarrow & \\ 2 & & x & \end{array}$ $\boxed{2x\sqrt[3]{4x}}$
$\frac{\sqrt{63x}}{\sqrt{9}\sqrt{7}} - \frac{\sqrt{28x}}{\sqrt{4}\sqrt{7}}$	$3\sqrt{7x} - 2\sqrt{7x}$ $\boxed{\sqrt{7x}}$
$\sqrt[5]{-32x^5y^{12}}$	$\begin{array}{cccc} \sqrt[5]{-32} & \sqrt[5]{x^5} & \sqrt[5]{y^{10}} & \sqrt[5]{y^2} \\ \downarrow & \downarrow & \downarrow & \\ -2 & x & y^2 & \end{array}$ $\boxed{-2xy^2\sqrt[5]{y^2}}$
$\sqrt{\frac{4}{11}}$	$\frac{\sqrt{4}}{\sqrt{11}} = \frac{2}{\sqrt{11}} \cdot \frac{\sqrt{11}}{\sqrt{11}}$ $\boxed{\frac{2\sqrt{11}}{11}}$
$(16x)^{\frac{3}{4}}$	$\left(\sqrt[4]{16x}\right)^3 \quad \left(2\sqrt{x}\right)^3 = 8\sqrt{x^3}$ $= \boxed{8x\sqrt{x}}$
$(81x^8y^6)^{\frac{1}{4}}$	$3x^2y^{\frac{3}{2}}$
$\frac{(2y^{\frac{1}{5}})^4}{y^{\frac{3}{10}}}$	$\frac{16y^{\frac{4}{5}}}{y^{\frac{3}{10}}} = 16y^{\frac{4}{5} - \frac{3}{10}}$ $\boxed{16y^{\frac{1}{2}}}$
$\sqrt[3]{24x^3y^3} + 5x^3\sqrt[3]{3x^3}$	$\sqrt[3]{8}\sqrt[3]{3}\sqrt[3]{x^3}\sqrt[3]{y^3} + 5x\sqrt[3]{3}\sqrt[3]{x^3}$ $\boxed{2xy\sqrt[3]{3} + 5x\sqrt[3]{3}}$

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$\sqrt{6x} \cdot \sqrt{3x}$	$\sqrt{18x^2} \quad \sqrt{9} \sqrt{2} \sqrt{x^2}$ $\boxed{3x\sqrt{2}}$
$5\sqrt[3]{16} + \sqrt[3]{54}$	$5 \sqrt[3]{8} \sqrt[3]{2} + \sqrt[3]{27} \sqrt[3]{2}$ $\underbrace{5 \cdot 2}_{10} \sqrt[3]{2} + 3 \sqrt[3]{2} \quad \boxed{13 \sqrt[3]{2}}$
$\frac{3}{3+\sqrt{7}}$	$\frac{3}{3+\sqrt{7}} \cdot \frac{3-\sqrt{7}}{3-\sqrt{7}} \quad \boxed{\frac{9-3\sqrt{7}}{2}}$
$\frac{72x^{\frac{3}{4}}}{9x^{\frac{1}{3}}}$	$8x^{\frac{5}{12}}$
$\sqrt[6]{x^4}$	$x^{\frac{4}{6}} = \boxed{x^{\frac{2}{3}}}$
$(36x^{12}y^{20})^{\frac{1}{2}}$	$6x^6y^{10}$
$x^3 \cdot \sqrt[4]{x^8}$	$x^3 \cdot x^2 = \boxed{x^5}$
$\sqrt[3]{24xy^3} - y\sqrt[3]{81x}$	$\sqrt[3]{8} \sqrt[3]{3} \sqrt[3]{x} \sqrt[3]{y^3} - y \sqrt[3]{81} \sqrt[3]{x}$ $2y \sqrt[3]{3x} - 3y \sqrt[3]{3x} \quad \boxed{-y \sqrt[3]{3x}}$