

$$14. \frac{5\sqrt{12} + \sqrt{75}}{\rule{1cm}{0pt}}$$

Put quiz in clicker

* if you don't have \sqrt use
"Sqr"

12.4 D2

Division

Simplify

1.

$$\sqrt{36} \rightarrow \sqrt[2]{6^2}$$

2.

$$\sqrt{75} \rightarrow \sqrt[2]{5^2 \cdot 3} = 5\sqrt{3}$$

- ~~Rules~~ 3.] Can't leave a fraction inside a $\sqrt{ }$
- ~~Rules~~ 4.] Can't leave a $\sqrt{ }$ in denominator

12.5 D1

Multiplication

divide 12.4 ÷ 2

$$\frac{\sqrt{8}}{\sqrt{2}} = \sqrt{\frac{8}{2}} \rightarrow \sqrt{4} = 2$$

$$\sqrt{\frac{15}{16}} = \frac{\sqrt{15}}{\sqrt{16}} \rightarrow \frac{\sqrt{15}}{4}$$

$$35. \sqrt{\frac{8x^3}{25y^6}}$$

$$37. \sqrt[3]{\frac{x^4}{8y^3}}$$

$$\sqrt{\frac{8x^3}{25y^6}} \rightarrow \frac{\sqrt{8x^3}}{\sqrt{25y^6}} \rightarrow \frac{\sqrt{2^2 \cdot 2 \cdot x^2 \cdot x}}{\sqrt{5^2 y^6}}$$

$$\sqrt[3]{\frac{x^4}{8y^3}} \rightarrow \frac{\sqrt[3]{x^4}}{\sqrt[3]{8y^3}} \rightarrow \frac{\sqrt[3]{x^3} \cancel{x}}{\sqrt[3]{(2y)^3}}$$

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

$$\frac{x\sqrt[3]{x}}{2y}$$

$$43. \sqrt[5]{\frac{64x^{13}}{y^{20}}} \rightarrow \frac{\sqrt[5]{64x^{13}}}{\sqrt[5]{y^{20}}}$$

$$\begin{array}{r} 2 | 64 \\ 2 | 32 \\ 2 | 16 \\ 2 | 8 \\ 2 | 4 \\ \hline 2 \end{array}$$

$$\frac{\sqrt[5]{2^5 \cdot 2^1 \cdot x^{10} \cdot x^3}}{\sqrt[5]{y^{20}}}$$

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

$$45. \frac{\sqrt{40}}{\sqrt{5}}$$

$$\frac{\sqrt{40}}{\sqrt{5}} \rightarrow \sqrt{\frac{40}{5}} = \sqrt{8}$$

$$47. \frac{\sqrt[3]{48}}{\sqrt[3]{6}}$$

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

$$\frac{\sqrt[3]{48}}{\sqrt[3]{6}} \rightarrow \sqrt[3]{\frac{48}{6}} \rightarrow \sqrt[3]{8}$$

~~$$\sqrt[3]{2^3}$$~~
$$(2)$$

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

49. $\frac{\sqrt{6}x}{\sqrt{54x^3}}$ Simplify

$\sqrt{\frac{54x^3}{6x}} \rightarrow \sqrt{9x^2}$

$3x$

$$55. \frac{\sqrt{48a^8b^7}}{\sqrt{3a^{-2}b^{-3}}}$$

$$\frac{\sqrt{48a^8b^7}}{\sqrt{3a^{-2}b^{-3}}}$$

Handwritten annotations: The fraction is shown with red arrows pointing from the top term to the bottom term. The top term is circled in blue, and the bottom term is circled in red.

$$\frac{4^2}{16a^{10}b^{10}}$$
$$4a^5b^5$$

Handwritten annotations: The fraction is shown with red arrows pointing from the top term to the bottom term. The top term is circled in blue, and the bottom term is circled in red.

Simplify

61.
$$\frac{\sqrt[4]{32x^{10}y^8}}{\sqrt[4]{2x^2y^{-2}}}$$

$$\frac{4\sqrt{32x^{10}y^8}}{\sqrt{2x^2y^{-2}}} \rightarrow \frac{4\sqrt{16x^8y^10}}{\sqrt{4x^2y^1}}$$

$$\cancel{4\sqrt{2^4x^8 \cdot y^8 \cdot y^2}}$$

and $\cancel{2^2 \cdot \cancel{x^2} \cdot \cancel{y^2}}$

$$2x^2y^2 \sqrt[4]{y^2} = y^{\frac{2}{4}} = y^{\frac{1}{2}}$$

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

12.5D) multiply

$$\sqrt[2]{3} \cdot \sqrt[2]{6} = \sqrt{18} = \sqrt{\cancel{3^2}} \cdot 2 = \cancel{3}\sqrt{2}$$

$$\begin{array}{r} 2 | 18 \\ 3 | 9 \\ \quad \quad 3 \end{array}$$

$$\underline{1} \sqrt{5} \left(2\sqrt{10} + \sqrt{5} \right)$$

Simplify

$$2\sqrt{5^2 \cdot 2} + 5$$

$$10\sqrt{2} + 5$$

$$(\sqrt{2} + \sqrt{6})(\sqrt{6} - \sqrt{8})$$

$$F \quad 0 \quad I \quad L$$

$$\cancel{\sqrt{2^2 \cdot 3}} - \sqrt{4^2} + 6 - \sqrt{2 \cdot 3 \cdot 2 \cdot 2 \cdot 2}$$

$$(2\sqrt{3}) - 4 + 6 = 2 - 2\sqrt{3}$$

$$= -4\sqrt{3}$$

$$\frac{(2\sqrt{5} - 3\sqrt{2})(4\sqrt{10} + 3\sqrt{2})}{}$$

Simplify

F

$$\frac{8\cancel{\sqrt{5^2}}2 + 6\sqrt{10} - 12\cancel{\sqrt{2^2}}5}{40\sqrt{2} + 6\sqrt{10} - 24\sqrt{5} - 18} - 9.2$$

conjugates

$$(\sqrt{3} + \sqrt{5})(\sqrt{3} - \sqrt{5})$$

$$3 - 5$$

$$\textcircled{-2}$$

Simplify

$$(2\sqrt{5} + 3\sqrt{10})(2\sqrt{5} - 3\sqrt{10})$$

(F) $4\cdot 5 - 9 \cdot 10$ (L) $\rightarrow 20 - 90$
 -70

Simplify

$$(\sqrt{2} + \sqrt{5})(\sqrt{2} + \sqrt{5})$$

(2)

$$2 + \sqrt{10} + \sqrt{10} + 5$$

$7 + 2\sqrt{10}$ end 12.5D1

