June 16, 2015

8.1 #44)

$$\left(\frac{a^{-1/2}b^{-1/2}c^{1/2}}{bc}\right)^{-2}$$

$$\frac{(a^{-1/2})^{-2}\cdot(b^{-1/2})^{-2}\cdot(c^{1/2})^{-2}}{b^{-2}c^{-2}}$$

$$\frac{abc^{-1}}{b^{-2}c^{-2}}$$

$$\frac{ab^{2}c^{2}}{c^{1}}$$

$$ab^{3}c$$

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#47)

$$\left(\frac{14a^{-3/4}b^{1/3}}{28a^{3/4}b^{-1/6}}\right)^{-2}$$

$$\frac{1^{-2}a^{3/2}b^{-2/3}}{7^{-2}a^{-3/2}b^{1/3}}$$

$$\frac{7^{2}a^{3/2}a^{3/2}}{1^{2}b^{1/3}b^{2/3}}$$

$$\frac{49a^{4}}{b}$$

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June 16, 2015 #4

#1)

$$\frac{(9xy^{1/2})^{-1/2}}{(216x^{1/2}y^{-1})^{-1/3}}$$

$$\frac{9^{-1/2}x^{-1/2}y^{-1/4}}{216^{-1/3}x^{-1/6}y^{1/3}}$$

$$\frac{216^{1/3}x^{1/6}}{9^{1/4}x^{1/2}y^{1/3}y^{1/4}}$$

$$\frac{\sqrt[3]{216}\,x^{\frac{1}{6}-\frac{1}{2}=\frac{1-3}{6}=\frac{-2}{6}=-\frac{1}{3}}}{\sqrt[4]{9}\,y^{\frac{1}{3}+\frac{1}{4}=\frac{4+3}{12}=\frac{7}{12}}}$$

$$\frac{6x^{-1/3}}{3y^{7/12}}=\frac{2}{x^{1/3}y^{7/12}}$$

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#2)

$$\sqrt[4]{x^{20}y^{16}z^{4}}$$

$$\sqrt[4]{(x^{5})^{4}\cdot(y^{4})^{4}\cdot(z^{1})^{4}}$$

$$x^{5}y^{4}z$$

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#3)

$$\sqrt[5]{x^{7}y^{13}}$$

$$\sqrt[5]{(x^{1})^{5}\cdot x^{2}\cdot(y^{2})^{5}\cdot y^{3}}$$

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

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In order add Radicals, they must be like

1. ~~Same~~ Radicand
2. ~~Same~~ Index

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8.3
#18) $\sqrt[4]{32t^5} - t\sqrt[4]{192t}$

$\sqrt[4]{16 \cdot 2 \cdot (t)^4 \cdot t} - t\sqrt[4]{16 \cdot 12t}$

$2t\sqrt[4]{2t} - 2t\sqrt[4]{12t}$

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8.4 Multiplication of Radicals

$\sqrt[n]{ab} = \sqrt[n]{a} \cdot \sqrt[n]{b}$

$(ab)^{1/n} = a^{1/n} \cdot b^{1/n}$

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$\sqrt{2} \cdot \sqrt{6}$

$= \sqrt{2 \cdot 6} = \sqrt{12}$

$= \sqrt{4 \cdot 3}$

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

$= 2\sqrt{3}$

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$\sqrt{5}(2 - \sqrt{6})$

$\sqrt{5}(2) - \sqrt{5}(\sqrt{6})$

$2\sqrt{5} - \sqrt{5 \cdot 6}$

$2\sqrt{5} - \sqrt{30}$

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FOIL

$(-3 + \sqrt{7})(\sqrt{2} + 5)$

F: $-3(\sqrt{2}) = -3\sqrt{2}$

O: $-3(5) = -15$

I: $\sqrt{7}(\sqrt{2}) = \sqrt{14}$

L: $\sqrt{7}(5) = 5\sqrt{7}$

no like terms to collect!

$-3\sqrt{2} - 15 + \sqrt{14} + 5\sqrt{7}$

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$(\sqrt{3} - \sqrt{5})^2 = (\sqrt{3} - \sqrt{5})(\sqrt{3} - \sqrt{5})$

$= 3 - \sqrt{15} - \sqrt{15} + 5$

like

$= 8 - 2\sqrt{15}$

$(\sqrt{3})^2 = \sqrt{3} \cdot \sqrt{3} = \sqrt{3 \cdot 3} = \sqrt{9} = 3$

$8 - 2X$

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$(a+b)^2 \neq a^2 + b^2$

$(4+x)^2 \neq 16 + x^2$

$(a+b)^2 = (a+b)(a+b)$

$= a^2 + ab + ab + b^2$

$= a^2 + 2ab + b^2$

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$(3+\sqrt{7})(3-\sqrt{7})$

Conjugate Pairs → Difference of Two Squares

F O I

$9 - 3\sqrt{7} + 3\sqrt{7} - 7$

$\boxed{2}$

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