June 11, 2015

#3) $\left(27^{-1} a^{-1/2} b^{1/3}\right)^{-1/3}$

$\left(\frac{b^{1/3}}{27 a^{1/2}}\right)^{-1/3}$

$\frac{\left(b^{1/3}\right)^{-1/3}}{27^{-1/3} \cdot \left(a^{1/2}\right)^{-1/3}}$

$27^{-1/3} = \sqrt[3]{27} = 3$

$\frac{27^{1/3} a^{1/6}}{b^{1/9}} = \frac{3a^{1/6}}{b^{1/9}}$

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#3) $\left(27^{-1} a^{-1/2} b^{1/3}\right)^{-1/3}$

$\left(27^{-1}\right)^{-1/3} \cdot \left(a^{-1/2}\right)^{-1/3} \cdot \left(b^{1/3}\right)^{-1/3}$

$27^{1/3} \cdot a^{1/6} \cdot b^{-1/9}$

$\frac{3a^{1/6}}{b^{1/9}}$

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$\sqrt{x^2} = \sqrt[2]{(x^1)^2}$ using Power Rule

$= x$

e.g.

$\sqrt{25} = \sqrt[2]{(5)^2}$

$= 5$

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$\sqrt{y^8} = \sqrt[2]{(y^4)^2}$

$= y^4$

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$\sqrt[3]{t^9} = \sqrt[3]{(t^3)^3}$

$= t^3$

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

Not a Perfect Square Root!

$= x\sqrt{x}$

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$\sqrt{y^{13}} = \sqrt[2]{(y^6)^2 \cdot y}$

$\frac{13}{2} = 6 \quad = y^6\sqrt{y}$

$\sqrt{y^{13}} = \sqrt[2]{yyyyyyyyyyyyy}$

6 groups of 2 ys

$= y^6\sqrt{y}$

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$\sqrt{x^{123}} = \sqrt[2]{(x^{61})^2}$

$\frac{123}{2} = 61 \quad = x^{61}\sqrt{x}$

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$\sqrt[5]{y^{11}} = \sqrt[5]{(y^2)^5 \cdot y}$

$= y^2\sqrt[5]{y}$

$\sqrt[5]{y^{13}} = \sqrt[5]{(y^2)^5 \cdot y^3}$

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

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$\sqrt[4]{81} = \sqrt[4]{(3)^4}$

$= 3$

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$\sqrt{50} = \sqrt[2]{25 \cdot 2}$

Product Rule for Radicals

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

$= \sqrt[2]{(5)^2 \cdot 2}$

$= \sqrt[2]{(5)^2} \cdot \sqrt[2]{2}$

$= 5\sqrt{2}$

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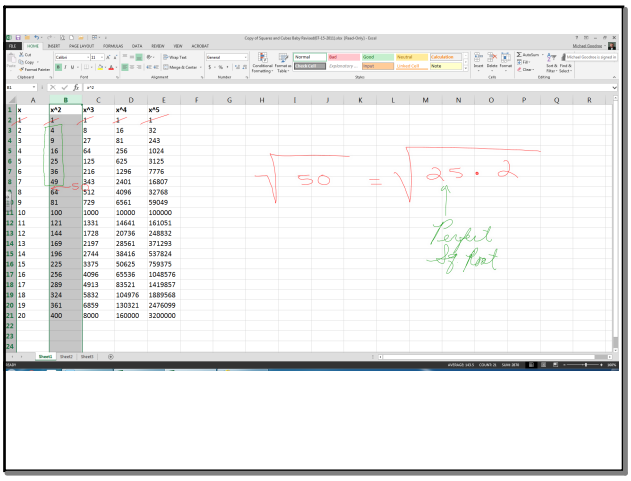

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$\sqrt{33}$

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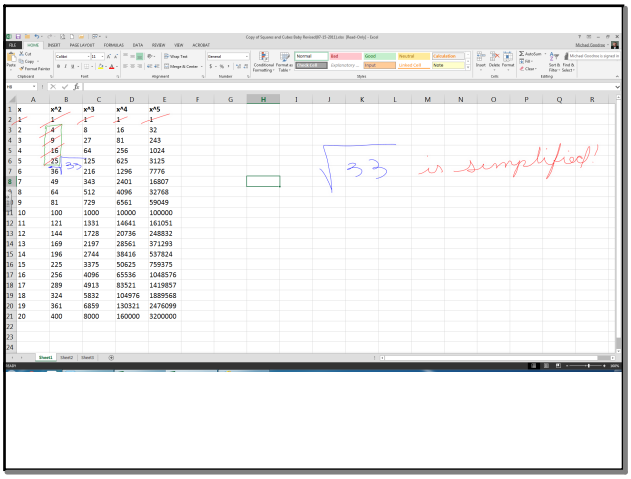

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8.2

#50) $\sqrt{27x^5y^3}$

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

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

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$2\sqrt{3} = \sqrt{(4)^2 \cdot 3}$

$= \sqrt{16 \cdot 3}$

$= \sqrt{48}$

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$2\sqrt[3]{11}$

$\sqrt[3]{(2)^3 \cdot 11}$

$\sqrt[3]{8 \cdot 11}$

$\sqrt[3]{88}$

$8 = 2^3$

27

64

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#52) $\sqrt[3]{-40a^8b^{14}}$

$\sqrt[3]{(-8) \cdot 5 \cdot a^8 \cdot b^{14}}$

$\sqrt[3]{(-2)^3 \cdot 5 \cdot (a^2)^3 \cdot a^2 \cdot (b^4)^3 \cdot b^2}$

$-2a^2b^4\sqrt[3]{5a^2b^2}$

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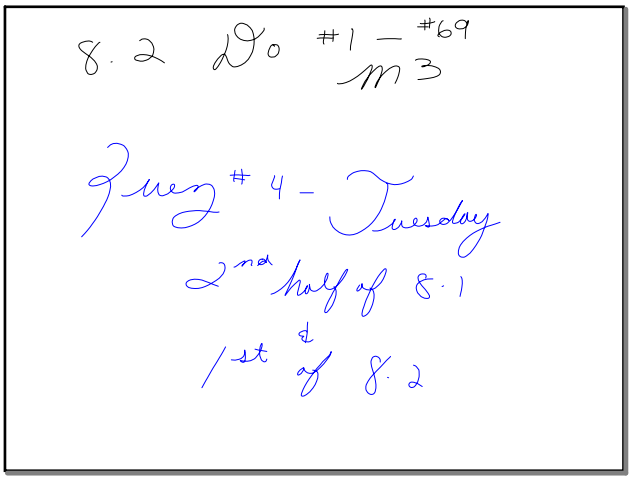

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