

June 11, 2015

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

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

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

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

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

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

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

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

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

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$$\sqrt{x^2} = \sqrt{(x^1)^2}$$

using Power Rule

$$= x$$

e.g.

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

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

$$= y^4$$

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

$$= t^3$$

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

Not a Perfect Square Root!

$$= x\sqrt{x}$$

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

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

$$\sqrt{y^{13}} = \sqrt{\underbrace{y \ y \ y \ y \ y \ y}_{6 \text{ groups of } 2 \ y}}$$

$$= y^6 \sqrt{y}$$

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

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

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

Product Rule for Radicals

$$\sqrt{a \cdot b} = \sqrt{a} \cdot \sqrt{b}$$

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

$$= 5\sqrt{2}$$

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Handwritten notes on the spreadsheet:

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

Product Rule for Radicals

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$$\sqrt{33}$$

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A screenshot of a spreadsheet application. The spreadsheet contains a table of powers of 2 and 3. The columns are labeled 2^0 through 2^8 and 3^0 through 3^8 . The rows are numbered 1 through 24. To the right of the spreadsheet, there is a handwritten note in red ink that says "sqrt(33) is simplified!".

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8.2
#50)

$$\sqrt{27x^5y^3}$$

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

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

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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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8.2 Do #1 - #69
M3

Quiz #4 - Tuesday
2nd half of 8.1
1st of 8.2

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