

June 18, 2015

Quiz #5

#2) $\sqrt[4]{32a^5} - a\sqrt[4]{162a}$
 $\sqrt[4]{16 \cdot 2 \cdot (a^4) \cdot a} - a\sqrt[4]{81 \cdot 2 \cdot a}$
 $2a\sqrt[4]{2a} - 3a\sqrt[4]{2a}$
 $-a\sqrt[4]{2a}$

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Rationalizing Denominators

① $\frac{2a}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{2a\sqrt{5}}{5}$
 ↑
 a single square root

② $\frac{\sqrt{3}}{2\sqrt{7}} \cdot \frac{\sqrt{7}}{\sqrt{7}} = \frac{\sqrt{21}}{2 \cdot 7} = \frac{\sqrt{21}}{14}$

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③ $\frac{\sqrt{3}}{(2 + \sqrt{7})} \cdot \frac{(2 - \sqrt{7})}{(2 - \sqrt{7})} = \frac{2\sqrt{3} - \sqrt{21}}{4 - 7}$
 $= \frac{2\sqrt{3} - \sqrt{21}}{-3}$
 Conjugate Pairs
 $= -\frac{2\sqrt{3} - \sqrt{21}}{3}$

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FOIL

$\frac{(2 - \sqrt{5})}{(\sqrt{5} + 2)} \cdot \frac{(\sqrt{5} - 2)}{(\sqrt{5} - 2)} = \frac{2\sqrt{5} - 4 - 5 + 2\sqrt{5}}{5 - 4}$
 $= \frac{4\sqrt{5} - 9}{1}$
 $= 4\sqrt{5} - 9$

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$\frac{6x + 12}{3}$

Not Correct:

① $\frac{6x + 12}{3} \neq \frac{6x + 12}{2(1) + 12} = 14$

② $\frac{6x + 12}{3} \neq \frac{6x + 4}{6(1) + 4} = 10$

Correct

$\frac{6x + 12}{3} = \frac{6(x + 2)}{3} = \frac{2(x + 2)}{1} = 2x + 4$

why

say $x = 1$

$\frac{6(1) + 12}{3} = \frac{6 + 12}{3}$
 $= \frac{18}{3}$
 $= 6$

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$\frac{3x}{4 - \sqrt{7}} \cdot \frac{4 + \sqrt{7}}{4 + \sqrt{7}}$

$= \frac{12x + 3x\sqrt{7}}{16 - 7}$

$= \frac{12x + 3x\sqrt{7}}{9} = \frac{1}{3}(4x + x\sqrt{7})$

$= \frac{4x + x\sqrt{7}}{3}$

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$$\sqrt[3]{\frac{27}{4x^2}} = \frac{\sqrt[3]{27}}{\sqrt[3]{4x^2}} = \frac{3}{\sqrt[3]{4x^2}}$$

quotient rule

$$\frac{3}{\sqrt[3]{4x^2}} \cdot \frac{\sqrt[3]{2x}}{\sqrt[3]{2x}} = \frac{3\sqrt[3]{2x}}{\sqrt[3]{8x^3}} = \frac{3\sqrt[3]{2x}}{2x}$$

a "one"

↑
Perfect
Power

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$$\sqrt[3]{2} \cdot \sqrt[3]{2} = \sqrt[3]{4}$$

$$\sqrt{2} \cdot \sqrt{2} = \sqrt{4} = 2$$

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$$\frac{2}{\sqrt[3]{9}} \cdot \frac{\sqrt[3]{3}}{\sqrt[3]{3}} = \frac{2\sqrt[3]{3}}{\sqrt[3]{27}} = \frac{2\sqrt[3]{3}}{3}$$

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$$\frac{y}{\sqrt[3]{5y}} \cdot \frac{\sqrt[3]{25y^2}}{\sqrt[3]{25y^2}} = \frac{y\sqrt[3]{25y^2}}{\sqrt[3]{125y^3}} = \frac{\cancel{y}\sqrt[3]{25y^2}}{5y}$$

$$= \frac{\sqrt[3]{25y^2}}{5}$$

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3, 6, 9

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

$$y^3 \cdot y^6 = y^9$$

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