

Bellwork 1-26-16

- Convert $(3x)^{-\frac{1}{3}}$ to radical form. $\frac{1}{\sqrt[3]{3x}}$
- Convert $\sqrt[7]{12x^4}$ to rational exponent form. $12^{\frac{1}{7}}x^{\frac{4}{7}}$
- Convert $n^{\frac{3}{8}}$ to radical form. $\sqrt[8]{n^3}$

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Add, Subtract, Multiply, & Divide Radicals 1-23-15

Adding/Subtracting Radicals *Like Radicals*

Treat the radicals like an x and add/subtract like terms.

Ex. 1 $2\sqrt{7} + 3\sqrt{7} = 5\sqrt{7}$

Ex. 2 $1\sqrt[3]{9} - 4\sqrt[3]{9} = -3\sqrt[3]{9}$

Ex. 3 $\frac{2\sqrt[3]{10} + \sqrt[3]{8} - 4\sqrt[3]{10}}{-2\sqrt[3]{10} + \sqrt[3]{8}}$

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Multiplying Radicals

Multiply everything under the radical together.
 Multiply everything outside the radical together.
 Simplify all the radicals.

Ex. 4 $\sqrt{9} \cdot \sqrt{3} = \sqrt{27} = 3\sqrt{3}$

Ex. 5 $3\sqrt[4]{12} \cdot -2\sqrt[4]{3} = -6\sqrt[4]{36}$

Ex. 6 $\sqrt{2}(3-2\sqrt{6}) = 3\sqrt{2} - 2\sqrt{12} = 3\sqrt{2} - 4\sqrt{3}$

Ex. 7 $-2\sqrt{7}(\sqrt{3}-4\sqrt{8}) = -2\sqrt{21} + 8\sqrt{56} = -2\sqrt{21} + 16\sqrt{14}$

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Dividing Radicals

You canNOT divide by a radical.

Ex. 4 $\frac{2}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{2\sqrt{3}}{\sqrt{9}} = \frac{2\sqrt{3}}{3}$

Ex. 5 $\frac{4\sqrt[3]{9}}{\sqrt[3]{75}} = \frac{12\sqrt[3]{3}}{5\sqrt[3]{3}} = \frac{12\sqrt[3]{3}}{5\sqrt[3]{3}} = \frac{12\sqrt[3]{3}}{5} = \frac{4\sqrt[3]{3}}{5}$

Ex. 6 $\frac{-2\sqrt[3]{24}}{\sqrt[3]{2}} = \frac{\sqrt[3]{50}}{\sqrt[3]{3}} = \sqrt[3]{\frac{50}{3}}$

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Conclusion

1. Can you add or subtract radicals with different numbers under the radicals like $\sqrt{2}$ and $\sqrt{3}$? *NO!*
2. When multiplying radicals, can you multiply a number outside the radical with a number inside the radical? *NO!*
3. Can we have a radical in the denominator of a fractions? *NO!*
4. Questions???

Assignment

Operations with Radicals Wkst

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