

Warm Up 1

The product $(2x^4y)(3x^3y^3)$ is equivalent to:

F. ~~$5x^7y^3$~~
 G. ~~$6x^7y^3$~~
 H. ~~$6x^7y^4$~~
 J. ~~$5x^7y^4$~~
 K. ~~$6x^7y^4$~~

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(4) $\frac{13^{\frac{3}{7}}}{13^{\frac{5}{7}}} = 13^{\frac{3}{7} - \frac{5}{7}} = 13^{-\frac{2}{7}} = \frac{1}{13^{\frac{2}{7}}}$

(5) $\sqrt{20}\sqrt{5} = \sqrt{100} = 10$

(6) $\sqrt[3]{16} \cdot \sqrt[3]{4} = \sqrt[3]{64} = 4$

(7) $\sqrt{8} \sqrt{8} = \sqrt{64} = 8$

(9) $\frac{\sqrt{64}}{\sqrt{2}} = \sqrt{\frac{64}{2}} = \sqrt{32} = 4\sqrt{2}$

$\frac{64^{\frac{1}{2}}}{2^{\frac{1}{2}}} = \left(\frac{64}{2}\right)^{\frac{1}{2}} = \sqrt{32} = 4\sqrt{2}$

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(47) $\frac{x^{\frac{2}{3}}y}{xy^{-\frac{1}{5}}} =$

$\frac{x^{\frac{2}{3}-1}y^{1-\frac{1}{5}}}{x^1y^{-\frac{1}{5}}} = \frac{x^{-\frac{1}{3}}y^{\frac{4}{5}}}{x^1y^{-\frac{1}{5}}} = x^{-\frac{1}{3}-1}y^{\frac{4}{5}+\frac{1}{5}} = x^{-\frac{4}{3}}y^1 = \frac{y}{x^{\frac{4}{3}}}$

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(49) $(\sqrt[3]{x^2} \cdot \sqrt[4]{x^4})^{-3} =$

$(x^{\frac{2}{3}} \cdot x^{\frac{4}{4}})^{-3} = (x^{\frac{2}{3}} \cdot x^1)^{-3} = x^{-2} = \frac{1}{x^2}$

rewrite in rational exponents

$(x^{\frac{2}{3}} \cdot x^{\frac{4}{3}})^{-3} = (x^{\frac{6}{3}})^{-3} = x^{-2} = \frac{1}{x^2}$

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$\sqrt[3]{9x^2} \cdot \sqrt[3]{3x^5} =$

$\sqrt[3]{27x^7} = \sqrt[3]{3^3x^3x^3x^1} = 3x^2\sqrt[3]{x}$

Steps

- 1) Multiply coefficients
- 2) Add exponents
- 3) Simplify coefficients

look for factors of coefficients that are perfect roots

Variables

look how many sets can come out of radical

Leftovers

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Warm Up2 Use your properties

1. $x^{\frac{2}{3}} \cdot x^{\frac{2}{5}}$
2. $\sqrt{x^{2/5}}$
3. $(x^{1/2})^{2/7}$
4. $(\frac{x^2}{27})^{1/3}$
5. $(\sqrt[3]{x^4} \cdot \sqrt{x^5})^{-2}$
6. $(x^{-3})^{2/5}$
7. $\frac{x^{\frac{3}{4}}}{x^{\frac{2}{5}}}$

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You try on your own...

- $\sqrt[4]{3x^7y^9z^3}$
- $\sqrt{x^3y^4z} \cdot \sqrt{xyz^4}$
- $\frac{\sqrt[3]{64x^3y}}{4x^{-3}y}$
- $\sqrt[3]{\frac{81x^2y^3}{8xy^4z}}$

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Adding and Subtracting Expressions. 6.2 cont

-To add or subtract any expression, you must have like terms. 212

- $x + y$ *not like terms / cant be combined*
- $2x + 3x = 5x$
- $\sqrt[4]{7} + 5\sqrt[4]{7}$
 $1\sqrt[4]{7} + 5\sqrt[4]{7} = 6\sqrt[4]{7}$

ex 4 $12xy^{1/2} - 8xy^{1/2}$

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Simplifying radical expressions that do not have like terms...

we are looking for perfect roots...to pull out of a radical so they will be "like terms" and we can perform the operation

make like term

- $3\sqrt{20} + 2\sqrt{5} =$
 $3\sqrt{4\sqrt{5}} + 2\sqrt{5} =$
 $6\sqrt{5} + 2\sqrt{5} = 8\sqrt{5}$
- $2\sqrt[3]{24} - 7\sqrt[3]{3} =$
 $2\sqrt[3]{8\sqrt{3}} - 7\sqrt[3]{3} =$
 $4\sqrt[3]{3} - 7\sqrt[3]{3} = -3\sqrt[3]{3}$

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Adding Subtracting expressions

- $2\sqrt{x} + 7\sqrt{x} = 9\sqrt{x}$
- $6\sqrt[3]{5} + 2\sqrt[3]{5} = 8\sqrt[3]{5}$
- $5\sqrt{5} - \sqrt{45}$
 $5\sqrt{5} - \sqrt{9\sqrt{5}} =$
 $5\sqrt{5} - 3\sqrt{5} = 2\sqrt{5}$
- $2\sqrt{27} - 3\sqrt{48}$
 $2\sqrt{9\sqrt{3}} - 3\sqrt{16\sqrt{3}} =$
 $6\sqrt{3} - 12\sqrt{3} = -6\sqrt{3}$
- $3(x^{1/2}y^3)^2 - (x^3y^{18})^{1/3}$
 $3xy^6 - xy^6 = 2xy^6$

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Can I manipulate to get like terms?

ex 6 $12x\sqrt[3]{3} + 7x\sqrt[3]{24}$

ex 7 $3x\sqrt{2x} + 5\sqrt{8x^3}$

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Mad Minute Quiz coming Lets practice...

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