Algebra 2 Bellwork Monday, February 29, 2016

Rationalize each denominator.

1. $\dfrac{8c}{\sqrt[4]{9a^3b^9c^{14}}}$

2. $\dfrac{12}{\sqrt[3]{40m^7n^{16}}}$

Simplify each. Assume that all variables are positive. Rationalize denominators.

3. $\sqrt{63g^4h^7} \cdot \sqrt{15g^6h^4}$

4. $\sqrt[3]{49m^5n^{-13}} \cdot \sqrt[3]{21m^7n^4}$

5. $\dfrac{\sqrt{48x^9y^3}}{\sqrt{10x^6y^8}}$

Algebra 2 Bellwork Monday, February 29, 2016 Answers

Rationalize each denominator.

1. $\dfrac{8c}{\sqrt[4]{9a^3b^9c^{14}}} \cdot \dfrac{\sqrt[4]{3^2ab^3c^2}}{\sqrt[4]{3^2ab^3c^2}} = \dfrac{8c\sqrt[4]{3^2ab^3c^2}}{\sqrt[4]{3^4a^4b^{12}c^{16}}}$

$9 = 3^2$

$= \dfrac{8c\sqrt[4]{3^2ab^3c^2}}{3ab^3c^4} = \dfrac{8\sqrt[4]{3^2ab^3c^2}}{3ab^3c^3}$

2. $\dfrac{12}{\sqrt[3]{40m^7n^{16}}} \cdot \dfrac{\sqrt[3]{5^2m^2n^2}}{\sqrt[3]{5^2m^2n^2}} = \dfrac{12\sqrt[3]{5^2m^2n^2}}{\sqrt[3]{2^3 \cdot 5^3 m^9 n^{18}}}$

$40 = 8 \cdot 5 = 2^3 \cdot 5$

$= \dfrac{12\sqrt[3]{5^2m^2n^2}}{2 \cdot 5m^3n^6} = \dfrac{6\sqrt[3]{5^2m^2n^2}}{5m^3n^6}$

Simplify each. Assume that all variables are positive. Rationalize denominators.

3. $\sqrt{63g^4h^7} \cdot \sqrt{15g^6h^4}$ (you could simplify first then multiply)

$63 = 9 \cdot 7$

$= 3g^2h^3\sqrt{7h} \cdot g^3h^2\sqrt{15}$

$= 3g^5h^5\sqrt{105h}$

4. $\sqrt[3]{49m^5n^{-13}} \cdot \sqrt[3]{21m^7n^4}$ (or multiply then simplify)

$49 = 7^2 \quad 21 = 7 \cdot 3$

$= \sqrt[3]{7^3 \cdot 3\, m^{12} n^{-9}}$

$= \dfrac{7m^4\sqrt[3]{3}}{n^3}$

5. $\dfrac{\sqrt{48x^9y^3}}{\sqrt{10x^6y^8}} = \dfrac{\sqrt{24x^3}}{\sqrt{5y^5}} \cdot \dfrac{\sqrt{5y}}{\sqrt{5y}} = \dfrac{\sqrt{120x^3y}}{\sqrt{25y^6}}$

$120 = 4 \cdot 30$

$= \dfrac{2x\sqrt{30xy}}{5y^3}$