Bellwork Hon Alg 2 Wednesday, March 22, 2017

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

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HON ALG 2 Bellwork **ANSWERS** WED 3-22-17

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

$$= \frac{8c\sqrt[4]{9ab^3c^2}}{3ab^3c^4}$$

$$= \boxed{\frac{8\sqrt[4]{9ab^3c^2}}{3ab^3c^3}}$$

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② $$\frac{12}{\sqrt[3]{40m^7n^{16}}} = \frac{12}{\sqrt[3]{8\cdot5m^7n^{16}}} \cdot \frac{\sqrt[3]{5^2m^2n^2}}{\sqrt[3]{5^2m^2n^2}} = \frac{12\sqrt[3]{25m^2n^2}}{\sqrt[3]{8\cdot5^3m^9n^{18}}}$$

$$= \frac{12\sqrt[3]{25m^2n^2}}{2\cdot5\cdot m^3\cdot n^6}$$

$$= \boxed{\frac{6\sqrt[3]{25m^2n^2}}{5m^3n^6}}$$

(3) $\sqrt{63 g^4 h^7} \cdot \sqrt{15 g^6 h^4} = \sqrt{3^2 \cdot 105 g^{10} h^{11}}$

$3 \cdot 21$ $\quad$ $3 \cdot 5$

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

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(4) $\sqrt[3]{49 m^5 n^{13}} \cdot \sqrt[3]{21 m^7 n^4} = \sqrt[3]{7^3 \cdot 3 m^{12} n^{17}}$

7^2 $\quad$ $7 \cdot 3$

$= \boxed{7 m^4 n^5 \sqrt[3]{3 n^2}}$

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(5) $\dfrac{\sqrt{48 x^9 y^3}}{\sqrt{10 x^6 y^8}} = \dfrac{\sqrt{24 x^3}}{\sqrt{5 y^5}} \cdot \dfrac{\sqrt{5y}}{\sqrt{5y}} = \dfrac{\sqrt{120 x^3 y}}{\sqrt{5^2 y^6}}$

$= \dfrac{\sqrt{120 x^3 y}}{5y^3} = \dfrac{\sqrt{4 \cdot 30 x^3 y}}{5y^3}$

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