Algebra 2 Bellwork Monday, February 22, 2016

Simplify each.

1. $\sqrt[3]{12m^6n^{13}}$

2. $\sqrt[5]{972a^{14}b^{-20}c^{42}}$

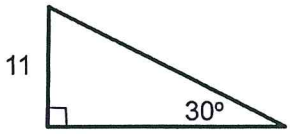
3. $\sqrt[3]{\dfrac{6g^{-9}h^{11}}{2^{-2}g^6h^{-3}}}$

4. Use these relationships in $30° - 60° - 90°$ triangles:

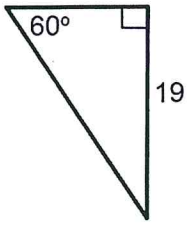
Short Leg (SL) $= \frac{1}{2} \cdot$ Hypotenuse Long Leg $= \sqrt{3} \cdot$ SL

Find the length of the missing sides. Rationalize denominators.

a)



b)



Algebra 2 Bellwork Monday, February 22, 2016 Answers

Simplify each.

1. $\sqrt[3]{12m^6n^{13}} = m^2n^4\sqrt[3]{12n}$

2. $\sqrt[5]{972a^{14}b^{-20}c^{42}}$ (243·4)

$= 3a^2b^{-4}c^8\sqrt[5]{4a^4c^2}$

$= \dfrac{3a^2c^8\sqrt[5]{4a^4c^2}}{b^4}$

$2^5 = 32$, $3^5 = 243$, $4^5 = 1024$

3. $\sqrt[3]{\dfrac{6g^{-9}h^{11}}{2^{-2}g^6h^{-3}}} = \sqrt[3]{\dfrac{6\cdot 2^2h^{14}}{g^{15}}} = \sqrt[3]{\dfrac{24h^{14}}{g^{15}}}$

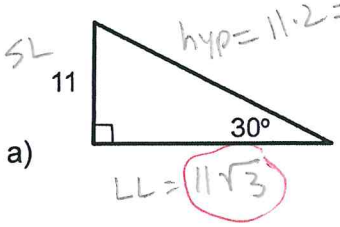
$= \sqrt[3]{\dfrac{8\cdot 3h^{14}}{g^{15}}} = \dfrac{2h^4}{g^5}\sqrt[3]{3h^2}$

4. Use these relationships in $30° - 60° - 90°$ triangles:

Short Leg (SL) $= \frac{1}{2} \cdot$ Hypotenuse Long Leg $= \sqrt{3} \cdot$ SL

Find the length of the missing sides. Rationalize denominators.

a)



b)

$SL = \dfrac{LL}{\sqrt{3}} = \dfrac{19}{\sqrt{3}}\cdot\dfrac{\sqrt{3}}{\sqrt{3}} = \dfrac{19\sqrt{3}}{3}$

$HYPOT = SL\cdot 2 = \dfrac{19\sqrt{3}}{3}\cdot 2$

$= \dfrac{38\sqrt{3}}{3}$