Honors Math 2 10.3 - 10.4 REVIEW

Name Key

1.) $\frac{x^{-5}y^{-3}}{x^6y^4}$

$= x^{-5-6}y^{-3-4}$

$= x^{-11}y^{-7} = \boxed{\frac{1}{x^{11}y^7}}$

2.) $\left(\frac{a^{-6}b^{-3}}{a^{-4}b^2c^{-4}}\right)^3$

$\frac{a^{-6\cdot3}b^{-3\cdot3}}{a^{-4\cdot3}b^{2\cdot3}c^{-4\cdot3}} = \frac{a^{-18}b^{-9}}{a^{-12}b^6c^{-12}}$

$= \frac{a^{-18--12}b^{-9-6}}{c^{-12}} = \frac{a^{-6}b^{-15}}{c^{-12}} = \boxed{\frac{c^{12}}{a^6b^{15}}}$

3.) $\frac{2.6\times10^6}{5.3\times10^{-9}}$

In calculator

↳ Answer = 4.90566E14

$= \boxed{4.90566\times10^{14}}$

4.) $\left(\frac{x^{7/2}y^{-4}}{x^3y^{\frac{1}{2}}z^{3/2}}\right)^{-4}$

$\frac{x^{\frac{7}{2}\cdot-4}y^{-4\cdot-4}}{x^{3\cdot-4}y^{\frac{1}{2}\cdot-4}z^{\frac{3}{2}\cdot-4}} = \frac{x^{-14}y^{16}}{x^{-12}y^{-8}z^{-6}}$

$= \frac{x^{-14--12}y^{16--8}}{z^{-6}} = \frac{x^{-2}y^{24}}{z^{-6}} = \boxed{\frac{y^{24}z^6}{x^2}}$

5.) $\left(\frac{4x^{-2}}{2y^3}\right)^3$

$\frac{4^3x^{-2\cdot3}}{2^3y^{3\cdot3}} = \frac{64x^{-6}}{8y^9} = \boxed{\frac{8}{x^6y^9}}$

6.) $\frac{12x^{-4}y^{-6}z^{13}}{2x^8y^7z^{-5}}$

$= \frac{12}{2}x^{-4-8}y^{-6-7}z^{13--5}$

$= 6x^{-12}y^{-13}z^{18}$

$= \boxed{\frac{6z^{18}}{x^{12}y^{13}}}$

7.) Write in simplified radical form.

$\sqrt[2]{576x^9y^5}$

$= \sqrt{2^4\cdot x^2\cdot x^2\cdot x^2\cdot x^2\cdot x^1\cdot y^2\cdot y^2\cdot y^1}$

$= 24\cdot x\cdot x\cdot x\cdot x\cdot y\cdot y\sqrt{xy} = 24x^4y^2\sqrt{xy}$

8.) $\sqrt[3]{135a^5b^4c^{12}}$

$= \sqrt[3]{3^3\cdot5\cdot a^3\cdot a^2\cdot b^3\cdot b^1\cdot c^3\cdot c^3\cdot c^3\cdot c^3}$

$= 3\cdot a\cdot b\cdot c\cdot c\cdot c\cdot c\sqrt[3]{5\cdot a^2\cdot b}$

$= \boxed{3abc^4\sqrt[3]{5a^2b}}$

Write in simplified exponential form.

9.) $(16y)^{1/4}(2401y)^{1/4}$

$= 16^{1/4}y^{1/4}\cdot2401^{1/4}y^{1/4}$

$= 2\cdot7\cdot y^{1/4+1/4} = \boxed{14y^{1/2}}$

10.) $4\sqrt[4]{a^3} - 6\sqrt[4]{a^3}$

$4a^{\frac{3}{4}} - 6a^{\frac{3}{4}} = \boxed{-2a^{\frac{3}{4}}}$

*combine like terms

11.) The area of a triangle is $36x^6y^5$. The height of the triangle is x^3y^2. What is the base of the triangle? $A = \frac{1}{2}bh$

$36x^6y^5 = \frac{1}{2}b(x^3y^2) \rightarrow b = \frac{36x^6y^5}{\frac{1}{2}x^3y^2} = \frac{36}{\frac{1}{2}}x^{6-3}y^{5-2} = \boxed{72x^3y^3}$

1.) $\frac{1}{x^{11}y^7}$

2.) $\frac{c^{12}}{a^6b^{15}}$

3.) approx 4.906×10^{14}

4.) $\frac{z^6y^{16}}{x^2}$

5.) $\frac{8}{x^6y^9}$

6.) $\frac{6z^{18}}{x^{12}y^{13}}$

7.) $24x^4y^2\sqrt{xy}$

8.) $3abc^3\sqrt[3]{5a^2b}$

9.) $14y^{1/2}$

10.) $-2a^{3/4}$

11.) $b = 72x^3y^3$