MATH 0270/1314 COLLEGE ALGEBRA Week 3 Tue 2/5/19

BOARD WORK (WEBASSIGN PROBLEMS).

2a. $\frac{9 \cdot 3^{-2}}{2^{-2} 3^{-1}} = \frac{9\left(\frac{1}{9}\right)}{2^{-2} \cdot 3^{-1}} = \frac{1}{2^{-2} \cdot 3^{-1}} = \frac{2^2 \cdot 3^{+1}}{1} = \frac{4 \cdot 3}{1}$

$= \boxed{12}$

4b. $\frac{3x^6}{x^5}$, $x^{6-5} = x^1$ $\therefore \frac{3x^6}{x^5} = \boxed{3x}$.

5a. $(-z)^7 (3z^8)$

$= -z^7 \cdot 3z^8$

$= -3^{7+8}$

$= \boxed{-3^{15}}$

5b. $\frac{49y^{16}}{21y^8} = \frac{7y^{16-8}}{3} = \boxed{\frac{7y^8}{3}}$

6a. $\frac{r^4}{r^6} = \frac{1}{r^{6-4}} = \boxed{\frac{1}{r^2}}$

6b. $\left(\frac{3}{y}\right)^3\left(\frac{3}{y}\right)^4 = \left(\frac{3}{y}\right)^{3+4} = \boxed{\left(\frac{3}{y}\right)^7} = \frac{3^7}{y^7} = \boxed{\frac{2187}{y^7}}$

7a. $(-4x^2)^5(8x^3)^{-1} = [(-1)^5(2x)^{2\cdot 5}][(2x)^3]^{-1} = -\frac{(2x)^{2\cdot 5}}{(2x)^3} = -\frac{(2x)^{10}}{(2x)^3}$

$= \boxed{-(2x)^7}$ ← Method #2

$= \frac{(-4x^2)^5}{8x^3}$

$= \frac{(-4)^5x^{10}}{8x^3}$

$= \frac{-1024x^{10}}{8x^3} = \boxed{-128x^7}$ ← Method 1

7b. $\left(\frac{x}{3}\right)^{-1} = \boxed{\frac{3}{x}}$

8a. $(4y^{-4})(2y^{8}) = \boxed{8y^{4}}$

8b. $\left(\frac{x^{-2}y^{+3}}{3}\right)^{-3} = \left(\frac{3}{x^{-2}y^{3}}\right)^{3} = \frac{3^{3}}{(x^{-2}y^{3})^{3}} = \frac{27}{x^{-6}y^{9}}$

$= \boxed{\frac{27x^{6}}{y^{9}}}$