Algebra I

8-2
Quotients of Exponents

<u>Laws of Exponents</u>

1) $(x^5)^4 = \underline{\ x^{20}\ }$

2) $x^5 \cdot x^4 = \underline{\ x^9\ }$

3) $(-2x^3y^7)^3 = \underline{-8x^9y^{21}}$

4) $\dfrac{x^5}{x^3} = \underline{\ x^2\ }$ when dividing, subtract the powers.

5) $\dfrac{x^4}{x^7} = \underline{\ \frac{1}{x^3}\ }$

6) $(3^2 \cdot 2^4)^3 = \underline{3^6 \cdot 2^{12}}$ if you change the powers, you can't change the base

7) $-3^2 = \underline{\ -9\ }$ $(-3)^2 = 9$

8) $(x + y)^2 = \underline{\text{can't do (yet)}}$

Simplify.

1) $\dfrac{n^7}{n^4}$ 2) $\dfrac{n^3}{n^5}$ 3) $\dfrac{(-8)^8}{(-8)^5}$

n^3 $\dfrac{1}{n^2}$ $(-8)^3 = \boxed{-8^3}$
                                        -512

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4) $\dfrac{x^7 \cdot x^4}{x^3}$ 5) $\left(\dfrac{-x}{3}\right)^2$ 6) $\left(\dfrac{2x^7}{x^5}\right)^3$

$= \dfrac{x^{11}}{x^3}$ $\dfrac{+x^2}{9}$ $(2x^2)^3$

$= x^8$ $8x^6$

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7) $\dfrac{2x^4}{y} \cdot \left(\dfrac{2x}{y}\right)^3$ 8) $\dfrac{4x}{y^4} \cdot \left(\dfrac{2x^2y^3}{x}\right)^4$

$\dfrac{2x^4}{y} \cdot \dfrac{8x^3}{y^3}$ $\dfrac{4x}{y^4} \cdot \dfrac{16x^8y^{12}}{x^4}$

$\dfrac{16x^7}{y^4}$ $\dfrac{64x^9y^{12}}{x^4y^4}$

                          $64x^5y^8$

Simplify.

9) $\dfrac{a^m}{a^n} = a^{m-n}$

Assignment
pg. 498
1-45 odd,
50, 51, 53