Worksheet 8.3 – Division Properties of Exponents – Textbook pages 463-469

<u>LEVEL 1</u>
Evaluate each expression. Write fractions in simplest form.

1) $\dfrac{3^2}{3^4}$

2) $\dfrac{(\text{-}2)^{\,3}}{2}$

3) $\dfrac{5(5)^6}{5^4}$

4) $\left(\dfrac{5}{6}\right)^2$

5) $\left(\dfrac{7}{5}\right)^{-2}$

6) $\dfrac{6^2 \cdot 6^{11}}{6^{16}}$

<u>LEVEL 2</u>
Simplify each expression. Rewrite the expression with positive exponents.

7) $\left(\dfrac{b^{10}}{b^3}\right)^{-2}$

8) $\left(\dfrac{y^3}{y^5}\right)^{-2}$

9) $\dfrac{r^{-5} \cdot r^5}{r^3}$

<u>LEVEL 3</u>
Simplify each expression. Rewrite the expressions with positive exponents.

10) $\dfrac{4x^2y^5}{2y^3} \cdot \dfrac{3xy^2}{x^3}$

11) $\dfrac{(2(\text{-}x)^2)^{-3}}{x^{-4}}$

12) $\dfrac{5(xyz^2)^{-3}}{25x^{-3}}$

13) $\dfrac{3h^{-2}k}{k^5} \cdot \dfrac{2h^5k^{-2}}{(3h)^2}$

14) $\dfrac{5a^{-2}}{3b^{-4}} \cdot \dfrac{(6ab^2)^{-2}}{ab}$

15) $\dfrac{2^{-2}z^{-4}}{7x^{-5}y^{-8}} \cdot (2x)^{-3}$

16) You toss a die 5 times in a row. **<u>Show</u>** that the probability of getting all sixes is about 0.00013.

17.) A middle range weekly wage for a woman in the U.S. from 1980 to 1997 can be modeled by $y = 348(1.035)^t$, where $t = 0$ represents the year 1990. Find the ratio of the weekly earnings in 1995 to the earnings in 1985.