Algebra Lesson 7-5A - Dividing Powers

EXERCISES **1.** c^{10} **3.** n^{32} **5.** c^{19} **7.** $\frac{1}{t^{14}}$ **9.** $625y^4$

11. $49a^2$ **13.** $36y^4$ **15.** $\frac{1}{8y^{12}}$ **17.** x^{16} **19.** 1

21. $9a^6b^8$ **23.** 1.6×10^{11} **25.** 8×10^{-30}

32) 3
33) -4
34) 4
35) -3
36) 0
37) 8
38) -2
39) 0
40) -3

19. $(mg^4)^{-1}(mg^4)$

$xy^2 \cdot x^3$

$(xy)^2 (x^5)$

Simplify

1. $(3x^{-3}y^{8})^{-2}$

2. $(a^{2}b^{3})^{4} \cdot (a^{-4}b)$

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$$\frac{a^m}{a^n} = a^{m-n}$$

$$\frac{5^6}{5^2} = 5^{6-2} = 5^4$$

$$\frac{5^6}{5^2} =$$

Simplify each expression.

a. $\frac{b^4}{b^9}$

b. $\frac{z^{10}}{z^5}$

c. $\frac{a^2b}{a^4b^3}$

Simplify each expression.

d. $\dfrac{m^{-1}n^2}{m^3n}$

e. $\dfrac{x^2y^{-1}z^4}{xy^4z^{-3}}$

$= x^{2-1} y^{-1-4} z^{4-(-3)}$

$= x^1 y^{-5} z^7 = \dfrac{xz^7}{y^5}$

Raising a Quotient to a Power.

$$\left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}$$

$$\left(\frac{4}{x^2}\right)^3 = \frac{4^3}{x^6} = \frac{64}{x^6}$$

Raising a Quotient to a Power.

$$\left(\frac{2x}{y}\right)^5$$

$$\left(\frac{3^3}{3^4}\right)^2$$

$$\frac{3^6}{3^8} = 3^{6-8} = 3^{-2} = \frac{1}{3^2} = \frac{1}{9}$$

Negative Exponents

$$\left(\frac{a}{b}\right)^{-n} = \left(\frac{b}{a}\right)^{n} = \frac{a^{-n}}{b^{n}} = \left(\frac{1}{a^{n}}\right)\left(\frac{b^{n}}{1}\right) = \frac{b^{n}}{a^{n}}$$

Simplify each expression.

a. $\left(\frac{3}{4}\right)^{-3}$ **b.** $\left(\frac{-1}{2}\right)^{-5}$ **c.** $\left(\frac{2r}{s}\right)^{-1}$ **d.** $\left(\frac{7a}{m}\right)^{-2}$

$= \left(\frac{4}{3}\right)^{3}$ $= \left(\frac{2}{-1}\right)^{5} = \frac{32}{-1}$

$= \frac{4^3}{3^3} = \frac{64}{27}$