

$$44) \frac{(2a^{-3}b^{-2})^{-5}}{ab^{-2}} = \frac{1}{a \cdot b^{-2} \cdot 2^5 a^{-15} b^{-10}}$$

$$= \frac{a^{14} b^{12}}{32}$$

$$45) \left(\frac{5a^{-4}}{b^{-3}}\right)^{-2} = \left(\frac{b^3}{5a^4}\right)^2$$

$$= \frac{b^6}{125 a^{12}}$$

$$46) \left(\frac{a^{-5}b}{c^4}\right)^{-3} \cdot \left(\frac{3c^{-5}b^{-3}}{a^4}\right)^{-2} = \left(\frac{c^4}{a^{-5}b}\right)^3 \cdot \left(\frac{a^4}{3c^{-5}b^{-3}}\right)^2$$

$$= \frac{a^{23} b^3 c^{22}}{9}$$

$$47) \left(\frac{3x^3y^{-2}}{2y^4z^5}\right)^2 \cdot \left(\frac{-2^{-1}z^{-4}}{3x^2y^5}\right)^{-3} = \left(\frac{3x^3y^{-2}}{2y^4z^5}\right)^2 \cdot \left(\frac{3x^2y^5}{-2^{-1}z^{-4}}\right)^3$$

$$= \frac{9x^6}{4y^{12}z^{10}} \cdot 27 \cdot x^6 \cdot y^{15} \cdot (-8) \cdot z^{12}$$

$$= -486 x^{12} y^3 z^2$$

$$48) \left(\frac{a^{-3}b^5}{-3a^4b^{-7}}\right)^{-3} = \left(\frac{-3a^4b^{-7}}{a^{-3}b^5}\right)^3$$

$$= \frac{-27a^{21}}{b^{36}}$$

$$49) \frac{(-3a^{-4}b^2c)^{-5}}{(-2a^2b^{-3})^{-2}} = \frac{(-2a^2b^{-3})^2}{(-3a^{-4}b^2c)^5}$$

$$= \frac{4a^4b^{-6}}{-243a^{-20}b^{10}c^5}$$

$$= \frac{-4a^{24}}{243b^{16}c^5}$$

$$50) \left(\frac{-3}{2}x^{-4}\right)^{-2} \cdot \left(\frac{1}{3x^3}\right)^{-3} = \left(\frac{2}{-3x^{-4}}\right)^2 \cdot (3x^3)^3$$

$$= \frac{4x^8}{9} \cdot 27x^9$$

$$= 12 x^{17}$$

$$51) \left(\frac{-3}{2}a^{-4}b^{-3}\right) \cdot (2a^{-1}b^3)^{-2} = \left(\frac{-3}{2}a^{-4}b^{-3}\right) \cdot \left(\frac{1}{2a^{-1}b^3}\right)^2$$

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

$$= \frac{-3}{8a^2b^9}$$

$$52) \frac{[(-3)^{-2}a^{-5}b^3] \cdot (-2^{-4}a^7b^{-3})^{-2}}{(-3a^5b^{-2})^{-3}} = \frac{(-3)^{-2}a^{-5}b^3 \cdot (-3a^5b^{-2})^3}{(-2^{-4}a^7b^{-3})^2}$$

$$= \frac{b^3 \cdot (-27) \cdot a^{15} \cdot (-2^8) \cdot b^6}{9a^5 \cdot a^{14}b^6}$$

$$= \frac{-768 b^3}{a^4}$$