

37

$$\left[ \frac{(-7)^1 a^2 b^3 c^0}{3^1 a^3 b^4 c^3} \right]^{-4} = \frac{(-7)^{-4} a^{-8} b^{-12} c^0}{3^{-4} a^{-12} b^{-16} c^{-12}}$$

outside/in

$$= \frac{3^4}{(-7)^4} \frac{a^{12}}{a^8} \frac{b^{16}}{b^{12}} \frac{c^{12}}{1}$$

$$= \frac{81}{2401} \frac{a^4}{1} \frac{b^4}{1} \frac{c^{12}}{1}$$

$$= \boxed{\frac{81 a^4 b^4 c^{12}}{2401}}$$

38

$$\left( \frac{(-2)^1 a^3 b^2 c^0}{3^1 a^2 b^3 c^7} \right)^{-2} = \left[ \frac{(-2)^1 a^1 \frac{1}{b^1} \frac{1}{c^7}}{(3)^1 \frac{1}{a^1} \frac{1}{b^1} \frac{1}{c^7}} \right]^{-2}$$

inside/out

$$= \frac{(-2)^{-2} a^{-2} \frac{1}{b^{-2}} \frac{1}{c^{-14}}}{(3)^{-2} \frac{1}{a^2} \frac{1}{b^2} \frac{1}{c^7}}$$

$$= \frac{(3)^2 \frac{1}{a^2} \frac{b^2}{1} \frac{c^{14}}{1}}{(-2)^2 a^2 \frac{1}{b^2} \frac{1}{c^7}}$$

$$= \boxed{\frac{9 b^2 c^{14}}{4 a^2}}$$

$$\textcircled{34} \quad \frac{2^1 x^4 y^{-4}}{8 x^7 y^3} = \frac{1}{4} \cdot \frac{1}{x^3} \cdot \frac{1}{y^4 y^3} = \boxed{\frac{1}{4 x^3 y^7}}$$

$$\textcircled{35} \quad (4^1 x^4 y^{-4})^3 = 4^3 x^{12} y^{-12} = \frac{4^3}{1} \cdot \frac{x^{12}}{1} \cdot \frac{1}{y^{12}}$$

$$= \boxed{\frac{64 x^{12}}{y^{12}}}$$

$$\textcircled{36} \quad 5^1 x^2 y^1 [2^1 x^4 y^{-3}]$$

$$\frac{5^1 2^1 x^2 x^4 y^1}{1 \quad 1 \quad y^3} = \frac{10}{1} \cdot \frac{x^6}{1} \cdot \frac{1}{y^2} = \boxed{\frac{10 \times 6}{y^2}}$$

$$\textcircled{37} \quad \left( \frac{-7^1 a^2 b^3 c^0}{3^1 a^3 b^4 c^3} \right)^{-4}$$

inside/out  $\left[ \left( \frac{-7}{3} \right) \left( \frac{1}{a} \right) \left( \frac{1}{b} \right) \left( \frac{1}{c^3} \right) \right]^{-4}$

$$\left( \frac{-7}{3} \right)^{-4} \left( \frac{1}{a^{-4}} \right) \left( \frac{1}{b^{-4}} \right) \left( \frac{1}{c^{-12}} \right)$$

$$\frac{(-7)^{-4}}{(3)^{-4}} \cdot \frac{a^4}{1} \cdot \frac{b^4}{1} \cdot \frac{c^{12}}{1}$$

$$\frac{3^4}{(-7)^4} \cdot \frac{a^4 b^4 c^{12}}{1} = \boxed{\frac{81 a^4 b^4 c^{12}}{2401}}$$

38) Outside/in

$$\left[ \frac{(-2)^1 a^3 b^2 c^0}{3^1 a^2 b^3 c^7} \right]^{-2}$$

$$\frac{(-2)^{-2}}{3^{-2}} \frac{a^{-6}}{a^{-4}} \frac{b^{-4}}{b^{-6}} \frac{c^0}{c^{-14}}$$

$$\frac{3^2}{(-2)^2} \frac{a^4}{a^6} \frac{b^6}{b^4} \frac{1c^{14}}{1}$$

$$\frac{9}{4} \frac{1}{a^2} \frac{b^2}{1} \frac{c^{14}}{1}$$

$$\boxed{\frac{9 b^2 c^{14}}{4 a^2}}$$