

Simplify each of the following expressions, writing your final answer with positive exponents.

$$1. -3xy^{-5} = -\frac{3x}{y^5}$$

$$2. 7^0 - 4^{-1} = 1 - \frac{1}{4} = \frac{4}{4} - \frac{1}{4} = \frac{3}{4}$$

$$3. (-2a^3b)^2(ab^7)$$

$$\begin{aligned} & (-2)^2 (a^3)^2 b^2 \cdot ab^7 \\ & 4 a^6 \cdot b^2 \cdot ab^7 \\ & = 4a^7b^9 \end{aligned}$$

$$4. \frac{3x^{-2}y^7z^{-1}}{x^3y}$$

Annotations: "stay" with arrow pointing to 3; "move" with arrow pointing from  $x^{-2}$  to  $x^3$ ; "stay" with arrow pointing to  $y^7$ ; "move" with arrow pointing from  $z^{-1}$  to  $z$ ; "stay" with arrow pointing to  $y$  in denominator.

$$\begin{aligned} & = \frac{3y^7}{x^2z^1 \cdot x^3y} \\ & = \frac{3y^7z^1}{x^5yz} = \frac{3yz^6}{x^5z} \end{aligned}$$