

$$1. (6w^4x^{-5}z^3)^2(2w^3x^{-4}z^2)^{-3}$$

$$(6^2w^8x^{-10}z^6)(2^{-3}w^{-9}x^{12}z^{-6})$$

$$= 6^2 \cdot 2^{-3} w^{-1} x^2 z^0$$

$$= \frac{6^2 x^2}{2^3 w} = \frac{36x^2}{8w} = \boxed{\frac{9x^2}{2w}}$$

$$2. \left(\frac{10a^{-3}b^{-5}c^6}{5a^4b^{-7}c^5} \right)^{-2}$$

$$\left(\frac{2b^2c}{a^7} \right)^{-2} = \frac{2^{-2}b^{-4}c^{-2}}{a^{-14}}$$

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

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