

Simplify

$$\begin{aligned} \left[\frac{(0.5)^2 * x^3 * y^{-1}}{9^2 - z^{-2}} \right]^{-3} * \left(\frac{27x^3}{8y - 3z^{-2}} \right)^{-2} &= \left[\frac{3^4 - z^{-2}}{2^{-2} * x^3 * y^{-1}} \right]^3 * \left(\frac{8y - 3z^{-2}}{(3x)^3} \right)^2 \\ &= \frac{((3^4 - z^{-2}) * y * 2^2)^3}{x^9} * \left(\frac{8y - 3z^{-2}}{(3x)^3} \right)^2 \\ &= \frac{(3^4 - z^{-2})^3 * (8y - 3z^{-2})^2 * 2^6 * y^3}{3^6 * x^{15}} \\ &= \frac{(3^4 * z^2 - 1)^3 * (8yz^2 - 3)^2 * 2^6 * y^3}{3^6 * x^{15} * z^{10}} = \frac{64y^3(81z^2 - 1)^3(8yz^2 - 3)^2}{729x^{15}z^{10}} \end{aligned}$$

Answer: $\frac{64y^3(81z^2-1)^3(8yz^2-3)^2}{729x^{15}z^{10}}$