

$$\begin{aligned}
 7. \quad \frac{(9x^{-2}y^3)^2}{(6xy^2)^3} &= \frac{9^2(x^{-2})^2(y^3)^2}{6^3x^3(y^2)^3} = \frac{81x^{-4}y^6}{216x^3y^6} = \frac{81}{216}x^{-4-3}y^{6-6} \\
 &= \frac{3}{8}x^{-7}y^0 = \frac{3}{8} \cdot \frac{1}{x^7} \cdot 1 = \frac{3}{8x^7}
 \end{aligned}$$

$$\begin{aligned}
 8. \quad [9(x+3)^2]^2[2(x+3)]^3 &= [9^2((x+3)^2)^2][2^3(x+3)^3] \\
 &= [81(x+3)^4][8(x+3)^3] = 648(x+3)^{4+3} \\
 &= 648(x+3)^7
 \end{aligned}$$