

Gr 9 Exponent Laws Review Quiz

Simplify. Please show your thinking.

1) $6^8 \cdot 6^{-6} = \boxed{6^2}$

2) $(4^{-1})^2 = \boxed{4^{-2}}$

3) $\frac{7^3}{7^9} = \boxed{7^{-6}}$

4) $\frac{2^3 \cdot (2^2)^{-2}}{2^3} = \frac{2^3 \cdot 2^{-4}}{2^3} = \boxed{2^{-4}}$

5) $\frac{2^4}{2^{-1} \cdot 2^{-4}} = \frac{2^4}{2^{-5}} = \boxed{2^9}$

6) $4x^7 \cdot 5x^9 = \boxed{20x^{16}}$

7) $(3k^{10})^4 = 3^4 k^{40}$
 $= \boxed{81k^{40}}$

8) $\frac{4n^0}{4n^4} = \boxed{n^{-4}}$

9) $\frac{b^{-6}}{(b^{-1})^3 \cdot b^{-10}} = \frac{b^{-6}}{b^{-3} \cdot b^{-10}} = \frac{b^{-6}}{b^{-13}}$
 $= \boxed{b^7}$

10) $\frac{x^{10}y^{-1}}{(xy^9)^{-6} \cdot x^{-7}y^0} = \frac{x^{10}y^{-1}}{x^{-6}y^{-54} \cdot x^{-7}y^0}$
 $= \frac{x^{10}y^{-1}}{x^{-13}y^{-54}}$
 $= \boxed{x^{23}y^{53}}$

11) $\left(\frac{pm^2 \cdot m^7p^{10}}{m^2q^{-2}}\right)^2 = \left(\frac{m^9p^{11}}{m^2q^{-2}}\right)^2$
 $= (m^7p^{11}q^2)^2$
 $= \boxed{m^{14}p^{22}q^4}$