Exponent Practice

Rule 1: Multiplying
When the bases match, just add the exponents to multiply the terms.

1. $x^{10} \cdot x^{4}$
2. $y^{23} \cdot y^{7}$
3. $a^{11} \cdot a^{2} \cdot a^{6}$
4. $m^{1/2} \cdot m^{1/4}$
5. $k^{-8} \cdot k^{5}$
6. $w^{3b} \cdot w^{7a}$
7. $c^{12} \cdot d^{-2} \cdot c^{-5} \cdot d^{6}$

Rule 2: Dividing
When the bases match, just subtract to divide the terms.

1. $\frac{x^8}{x^5}$
2. $\frac{v^{-3}}{v^{-7}}$
3. $\frac{m^{3.5}}{m^{2.1}}$
4. $\frac{b^{3/4}}{b^{1/5}}$
5. $\frac{a^{12}d^3}{a^7d^8}$

Rule 3: Raising a Power to a Power
To raise a power to a power, multiply the exponents.

1. $(a^5)^4$
2. $(b^{-3})^7$
3. $(a^3)^{1.2}$
4. $(a^{3/4})^{1/2}$

Rule 4: Distributing
Distribute the power to each term.

1. $(xy^3)^4$
2. $(3a^2b^3)^2$
3. $\left(\frac{2m^3}{5b^2}\right)^3$

Rule 5: Zero Power
Anything to the zero power equals 1.

1. m^0
2. 1457^0
3. $(x^{34})^0$
4. $(98752\, x^{25}\, y^{75})^0$

Rule 6: Negative Power
A term with a negative power is on the wrong side of the fraction bar. Move it.

1. x^{-3}
2. $\frac{2}{y^{-4}}$
3. $\frac{p^{-3}r^6}{t^{-5}s^{-2}}$
4. $\frac{7g^{-5}}{2h^{-7}j^2}$

Rule 7: Fractional Exponents
The top number is the power. The bottom number is the root.

1. $81^{\frac{3}{4}}$
2. $125^{2/3}$
3. $9^{-\frac{1}{2}}$
4. $16^{-\frac{1}{4}}$