Product of Like Bases: To multiply powers with the same base, add the exponents and keep the common base

$a^m * a^n = a^{m+n}$ So copy the base and add the exponents (little numbers high in the sky: m and n)

Example 1: $2^2 * 2^3$

Example 2: $(\frac{1}{5})^3 * (\frac{1}{5})^4$

Example 3: $x^2 * x^7$

Example 4: $5x^4 * 7x$

Example 5: $5x^4y * 7xy^8$

Example 6: $2y * -5y^2 * 3y^3$

Example 7: (ab) $(6a^5b)$ (- ab)

Example 8: - 2xy * xy * $3x^2 y^3$

Example 9: (- 4 a^3b) ($3a^2b^5$)

Example 10: - 4(rs^2)(- $5r^4$s)

Example 11: (- $6a^2b$) * ($\frac{1}{2}$ab)

Example 12: 12y * ($\frac{2}{3}$ x y^4)

Quotient of Like Bases: To divided powers with the same base, subtract the exponents and keep the common base

$\frac{a^m}{a^n} = a^{m-n}$ So copy the base and subtract the exponents (little numbers high in the sky: m and n)

Example 1: $\frac{5^4}{5}$ ***Example 2:*** $\frac{x}{x^5}$ ***Example 3***: $\frac{5x^7}{15x^3}$ ***Example 4:*** $\frac{18x^{15}\,y^4}{20x^3y^8}$

Example 5: $\frac{7}{7^3}$ ***Example 6:*** $\frac{x^4}{x^3}$ ***Example 7***: $\frac{8x^9}{18x^3}$ ***Example 8:*** $\frac{-36c^2\,d^5}{4c^2\,d^3}$

Example 9: $\frac{4n^5}{8n}$ ***Example 10:*** $\frac{36m^9\,n^5}{54m^3\,n^2}$ ***Example 11:*** $\frac{14rs}{7r^2\,s^4}$ ***Example 12:*** $\frac{-15x^5\,y^5\,z}{-3x^6\,y^3}$