

$$3x^4$$

Coefficient = 3

Base = x

Exponent = 4

Decimal Notation

$$\wedge \quad 2^4 = \underline{2 \cdot 2 \cdot 2 \cdot 2} = 16$$

$$5^5 = \underline{5 \cdot 5 \cdot 5 \cdot 5 \cdot 5} = 3125$$

$$10^7 = \underline{10 \cdot 10 \cdot 10 \cdot 10 \cdot 10 \cdot 10 \cdot 10} = 10,000,000$$

Product of Powers

$$X^m \cdot X^n = X^{m+n}$$

Part 1 → Simplify the expression, write your answer using exponents

1. $(10^6)10^5 = 10^{11}$

2. $(6^8)6^5 = 6^{13}$

3. $(k^4)k^9 = k^{13}$

Multiplying Monomials

$$\underline{(3x^4z^6)} \underline{(-6y^4)} = \underline{-18x^4y^4z^6}$$

1st: Multiply your coefficients

2nd: Put your bases in ABC order

3rd: Add exponents of like bases

Part 2 → Simplify each product

4. $\underline{(-13b^7)} \underline{(2bf^4)} = \underline{-26b^8f^4}$

5. $\underline{(3x^a y^b z^c)} \underline{(-y^f z^g)} = \underline{-3x^a y^{b+f} z^{c+g}}$

Part 3 → Volume and word problems

6. The volume of a pyramid is $V = \frac{1}{3}lwh$.
Find the volume using
The given values of l , w and h .

$$\begin{aligned} l &= 6x^3 \\ w &= 2x^2 \\ h &= 3x \end{aligned}$$

$$\begin{aligned} V &= \frac{1}{3}(6x^3)(2x^2)(3x) \\ V &= 12x^6 \end{aligned}$$