Multiplying and Dividing Powers With The Same Base

Ex. $4^3 \times 4^5$

$(4 \times 4 \times 4) \times (4 \times 4 \times 4 \times 4 \times 4)$

$= 4^8$

$= 65536$

Product Rule → To multiply powers with the same base, we add the exponents.

Ex. $5^2 \times 5^7 = 5^9$

Ex2. $(-7)^3 \times (-7)^4 = (-7)^7$

Dividing

Ex. $8^7 \div 8^4 = \frac{8^7}{8^4}$

$$= \frac{8 \times 8 \times 8 \times 8 \times 8 \times 8 \times 8}{8 \times 8 \times 8 \times 8}$$

$$= 8^3$$

$$= 512$$

Quotient Rule → To divide powers with the same base, you subtract the exponents.

Ex. $3^4 \div 3^3 = 3^1$

Ex2. $7^6 / 7^2 = 7^4$