

Number – Indices

The plural of index is indices

Index notation

Rules of indices

Multiplying

$$\begin{aligned}5^3 \times 5^7 \\ &= 5 \times 5 \times 5 \times 5 \times 5 \times 5 \times 5 \times 5 \times 5 \\ &= 5^{10}\end{aligned}$$

To multiply
add the indices

$$\begin{aligned}5^3 \times 5^7 \\ &= 5^{3+7} \\ &= 5^{10}\end{aligned}$$

Dividing

$$\begin{aligned}6^8 \div 6^5 \\ &= \frac{6 \times 6 \times 6 \times 6 \times 6 \times 6 \times 6 \times 6}{6 \times 6 \times 6 \times 6 \times 6} \\ &= 6^3\end{aligned}$$

To divide
subtract the indices

$$\begin{aligned}6^8 \div 6^5 \\ &= 6^{8-5} \\ &= 6^3\end{aligned}$$

A quick way to write products if
the number is the same

$$\begin{aligned}7 \times 7 \times 7 \times 7 \times 7 &= 7^5 \\ 4 \times 4 \times 4 &= 4^3 \\ 10 \times 10 \times 10 \times 10 &= 10^4\end{aligned}$$

$$9^7$$

Nine to the power of 7