

Zero, reciprocal and a non-zero base

A negative exponent changes the form, not the sign alone.

ONE FROM EQUAL NON-ZERO POWERS

$$5^3 / 5^3 = 1, \text{ so } 5^0 = 1.$$

This argument does not define 0^0 .

A RECIPROCAL, NOT A NEGATIVE VALUE

$$2^{-3} = 1 / 2^3 = 1/8$$

$$10^{-2} = 1/100 = 0.01$$

$$a^{-n} = 1/a^n \text{ only if } a \text{ is not } 0.$$

CHECK THE ORIGINAL DENOMINATOR

$$u^2 / u^5 = 1/u^3, \text{ only if } u \text{ is not } 0.$$

At $u=0$, the original denominator is 0.

My allowed values and reason: _____

Brackets matter: $(-2)^4 = 16$; $-2^4 = -16$.

Write the domain before cancelling a variable.