

**All of the following “equations” are WRONG.**

Negative exponents in fractional expressions

$$\frac{a + b^{-1}}{c} = \frac{a+1}{cb} \quad \text{or} \quad \frac{a + b^{-1}}{c} = \frac{a}{cb}$$

Adding exponentials

$$2^a + 2^a = 4^a$$

$$2^a + 2^a = 4^{2a}$$

$$2^a + 2^b = 2^{a+b}$$

**All of these “equations” are WRONG.**

Dividing exponentials

$$\frac{4^x}{2} = 2^x$$

$$\frac{2^{2x}}{2} = 1$$

$$\frac{2^{-x}}{2} = \frac{1}{4^x}$$

$$2^{-x} = \frac{2}{x}$$

**All of these “equations” are WRONG.**

Multiplying exponentials

$$2^x 2^x = 4^{2x}$$

$$(2^x)^2 = 4^{x^2}$$

**All of these “equations” are WRONG.**

Squaring binomial expressions with exponential terms

$$\left(2^x + 2^{-x}\right)^2 = 2^{2x} + 2^{-2x}$$

**All of these “equations” are WRONG.**

or variations on the above using the “rules” for multiplying exponentials given previously:

$$\left(2^x + 2^{-x}\right)^2 = 4^{2x} + 4^{-2x}$$

**All of these “equations” are WRONG.**

$$\left(2^x + 2^{-x}\right)^2 = 4^{x^2} + 4^{-x^2}$$