1 Algebra tricks

Various useful algebraic tricks that can be tried when stuck on a problem.

1.1 Forcing the denominator into the numerator

$$\frac{x^2}{x^2 - 9}$$

$$\equiv \frac{(x^2 + 9) + 9}{x^2 - 9}$$

$$\equiv \frac{x^2 - 9}{x^2 - 9} + \frac{9}{x^-9}$$

$$\equiv 1 + \frac{9}{x^-9} \tag{1}$$