

Basic Properties of Equality:

reflexive $x = x$.

symmetric If $x = y$, then $y = x$.

transitive If $x = y$ and $y = z$, then $x = z$.

- For any function $f(x_1, \dots, x_n)$,
if $x_1 = y_1, \dots, x_n = y_n$ then

$$f(x_1, \dots, x_n) = f(y_1, \dots, y_n).$$

- Similarly if a predicate (relation) is true of x_1, \dots, x_n and
 $x_1 = y_1, \dots, x_n = y_n$ then the predicate is true of y_1, \dots, y_n