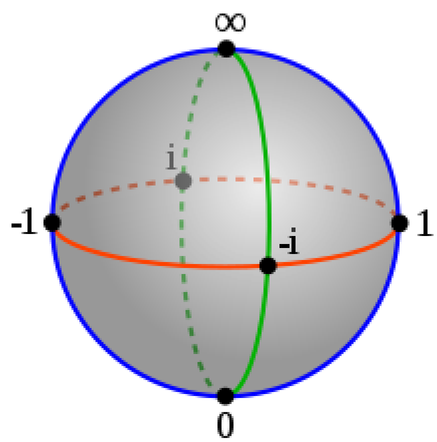
Refutation of additive arithmetic operations in the Riemann sphere

We assume Meth8/VŁ4 with the designated *proof* value of Tautology and falsity value of Contingency.

Taken from: en.wikipedia.org/wiki/Riemann_sphere



Addition of complex numbers may be extended by defining, for $z \in \mathbf{C}$,
z+∞ = ∞ for any complex number *z*, (1.1)
and multiplication may be defined by z×∞ = ∞
for all nonzero complex numbers *z*, with ∞×∞ = ∞. (2.1)
Note that ∞–∞ and 0×∞ are left undefined. (3.1)
Unlike the complex numbers, the extended complex numbers do not form a field, since ∞ does not have a multiplicative inverse. Nonetheless, it is customary to define division on **C** ∪{∞} by z/0 = ∞ and z/∞ = 0
for all nonzero complex numbers *z*,
with ∞/0 = ∞ and 0/∞ = 0. (4.1)
The quotients 0/0 and ∞/∞ are left undefined. (5.1)

LET p q r: **C**, z, ∞;
& And, ×; + Or, +, ∪; - Not Or, -; \ Not And, /; < Not Imply, ∈;
= Equivalent, =; @ Not Equivalent; % possibility, for one or some; # necessity, for all;
(%p>#p) one, 1; ((%p>#p)-(%p>#p)) zero, 0; (r@r) undefined.

((q<p)&#q) > ((q+r)=r) ; TTCT TTTT TCTT TTTT (1.2)

((q<p)&#(q@((%p>#p)-(%p>#p)))) > (((q&r)=r)&((r&r)=r)) ;
TTTT TTTT TTTT TTTT (2.2)

((r-r)&(((%p>#p)-(%p>#p))&r)) = (r@r) ; TTTT TTTT TTTT TTTT (3.2)

((p+r)&#(q@((%p>#p)-(%p>#p)))) >
(((((q\((%p>#p)-(%p>#p)))=r)&((q\r)=((%p>#p)-(%p>#p))))
& (((r\((%p>#p)-(%p>#p)))=r)
& ((((%p>#p)-(%p>#p))\r)=((%p>#p)-(%p>#p))))) ;
TTTC TTCC TTTC TTCC (4.2)

((((%p>#p)-(%p>#p))\((%p>#p)-(%p>#p)))&(r\r)) = (r@r) ;
CCCC TTTT CCCC TTTT (5.2)

Eqs. 2.2 and 3.2 as rendered are tautologous. This means the definition of multiplication for extended complex numbers and undefined values of $\infty - \infty$ and $0 \times \infty$ are theorems.

Eq. 1.2 is *not* tautologous. This means the definition of addition for extended complex numbers is not a theorem.

Eqs. 4.2 and 5.2 are *not* tautologous. This means the custom of forcing a field definition for extended complex numbers is mistaken as are the undefined values of the quotients $0/0$ and ∞/∞.