March 11, 2017
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Expanded Fractions and Division by Zero

Theorem Given a,b,c ∈ R, if

$$F(a,b) - F(a - bc, b) = c, \quad F(a,b) = c + F(a - bc, b)$$

and

$$F(a,b) = \frac{a}{b} \quad (a, b \in \mathrm{R})$$

then, the following is true

$$F(a,0) = 0$$

Proof In the function F, if $b = 0$, then

$$F(a,0) - F(a - 0 \times c, 0) = F(a,0) - F(a,0) = c$$

Here, c is the leading number of the compound number F, and the quotient of c and $(a–bc)^2$ is the quotient of F; however, in $F(a,0)$, $c = 0$ is the only value that can be obtained for c. Therefore, $F(a,0) = 0$. QED