Solve for x: $\frac{x-2}{2-x} = 2$

we find for the LHS: $\frac{x-2}{2-x} = \frac{-(-x+2)}{2-x} = -\frac{2-x}{2-x}$

Since num. equals den.: $-\frac{2-x}{2-x} = -1$

Equating LHS to RHS yields: $\mathbf{-1 = 2}$

Quid? ¿Qué?

Generalised form: $\frac{x-p}{p-x} = p \qquad (x, p \in \mathbb{R})$

m'plying by $(p - x)$ yields: $x - p = p(p - x) = p^2 - px$

hence: $x + px = p^2 + p = p(p + 1)$

i.e.: $x(1 + p) = p(1 + p)$

rendering: $x = p$

resubstitute: $\frac{x-p}{p-x} = \frac{p-p}{p-p} = \frac{\mathbf{0}}{\mathbf{0}} = \boldsymbol{p}$

Since $p \in \mathbb{R}$ can have *any* value,

this would show that: $\frac{\mathbf{0}}{\mathbf{0}} = \textit{any value}$

Better said: $\frac{\mathbf{0}}{\mathbf{0}} = \textit{undefined.}$

But what did I do *wrong* in the above?

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