MODULE *Uniswap*

EXTENDS *Reals*, *FiniteSets*

CONSTANT X, Y, L

ASSUME $X \in Real \land X > 0$
ASSUME $Y \in Real \land Y > 0$
ASSUME $L \in Real \land L > 0$

VARIABLE S

$Trade \triangleq$
$\exists\, x \in Real :$
$\land\ S[1] + x > 0$
$\land\ S' = \langle S[1] + x,\ (S[1] * S[2])/(S[1] + x),\ S[3] \rangle$

$Liquidity \triangleq$
$\exists\, a \in Real :$
$\land\ a > 0$
$\land\ S' = \langle a * S[1],\ a * S[2],\ a * S[3] \rangle$

$Init \triangleq S = \langle X,\ Y,\ L \rangle$

$Next \triangleq$
$\lor\ Trade$
$\lor\ Liquidity$

$Spec \triangleq Init \land \Box[Next]_S$

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* Modification History
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