MODULE *GCD*

EXTENDS *Integers*

$Divides(p,\, n) \triangleq$
$\quad \exists\, q \in Int :$
$\quad\quad n = q * p$

For integers p and n, equals TRUE iff p divides n – which I think is really neat; don't you?

$DivisorsOf(n) \triangleq \{p \in Int : Divides(p,\, n)\}$

$SetMax(S) \triangleq$
$\quad \text{CHOOSE } i \in S : \forall\, j \in S : i \geq j$

CHOOSE produces elements rather than sets.

$GCD(m,\, n) \triangleq$
$\quad\quad SetMax(DivisorsOf(m) \cap DivisorsOf(n))$

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