

ring_hom^{13,42}

RingHom($R;S$)
 $\equiv_{\text{def}} \{f:|R|\rightarrow|S|\mid \text{FunThru2op}(|R|;|S|;+R;+S;f) \ \& \ \text{FunThru2op}(|R|;|S|;*R;*S;f) \ \& \ f(1) = 1\}$

clarification:

RingHom($R;S$)
 $\equiv_{\text{def}} \{f:|R|\rightarrow|S|\mid \text{FunThru2op}(|R|;|S|;+R;+S;f) \ \& \ \text{FunThru2op}(|R|;|S|;*R;*S;f) \ \& \ f(1R) = (1S) \in |S|\}$