

$\mathcal{R} / : \mathcal{R}[is1_, os1_, _, w1_] \equiv \mathcal{R}[is2_, os2_, _, w2_] :=$

TrueQ[(Sort@is1 === Sort@is2) \wedge (Sort@os1 === Sort@os2) \wedge

PowerExpand[w1 == w2]]