Formatif_P_week1

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1 Proof

Prove that if m = $_{(n)}m'$ *and* $p =_{(n)} p'$ *then* $m + p =_{(n)} m' + p'$
According to the definition,we have:
$m =_{(n)} p\ if\ n|(m - p)\ \ (a)$
So we just need to prove: $n|(m + p) - (m' + p')$
Since $m =_{(n)} m'$ *and* $p =_{(n)} p'$
we have $m = An + m'$ *and* $p = Bn + p'$ *where* $A, B \in \mathbb{Z}$
$\Rightarrow m - m' = An$ *and* $p - p' = Bn$
$\Rightarrow (m - m') + (p - p') = (A + B)n$ *where*$(A + B) \in \mathbb{Z}$
$\Rightarrow n|(m - m') + (p - p')$
$\Rightarrow n|(m + p) - (m' + p')$
by the definition (a)
we proved $n|(m + p) - (m' + p')$
so $m + p =_{(n)} m' + p'$