

3.48 This problem asks that we convert (111) and $(0\bar{1}2)$ planes into the four-index Miller-Bravais scheme, $(hki\bar{l})$, for hexagonal cells. For (111), $h = 1$, $k = 1$, and $l = 1$, and, from Equation 3.7, the value of i is equal to

$$i = -(h + k) = -(1 + 1) = -2$$

Therefore, the (111) plane becomes $(11\bar{2}1)$.

Now for the $(0\bar{1}2)$ plane, $h = 0$, $k = -1$, and $l = 2$, and computation of i using Equation 3.7 leads to

$$i = -(h + k) = -[0 + (-1)] = 1$$

such that $(0\bar{1}2)$ becomes $(0\bar{1}12)$.