3.42 For plane A since the plane passes through the origin of the coordinate system as shown, we will move the origin of the coordinate system one unit cell distance vertically along the $z$ axis; thus, this is a $(21\bar{1})$ plane, as summarized below.

\[
\begin{array}{ccc}
\chi & \nu & \zeta \\
\text{Intercepts} & \frac{a}{2} & b & -c \\
\text{Intercepts in terms of } a, \, b, \, \text{and } c & \frac{1}{2} & 1 & -1 \\
\text{Reciprocals of intercepts} & 2 & 1 & -1 \\
\text{Reduction} & \text{not necessary} \\
\text{Enclosure} & (21\bar{1}) \\
\end{array}
\]

For plane B, since the plane passes through the origin of the coordinate system as shown, we will move the origin one unit cell distance vertically along the $z$ axis; this is a $(02\bar{1})$ plane, as summarized below.

\[
\begin{array}{ccc}
\chi & \nu & \zeta \\
\text{Intercepts} & \infty & a & b & -c \\
\text{Intercepts in terms of } a, \, b, \, \text{and } c & \infty & \frac{1}{2} & 1 & -1 \\
\text{Reciprocals of intercepts} & 0 & 2 & -1 \\
\text{Reduction} & \text{not necessary} \\
\text{Enclosure} & (02\bar{1}) \\
\end{array}
\]