3.31 Direction A is a $[\bar{1}10]$ direction, which determination is summarized as follows. We first of all position the origin of the coordinate system at the tail of the direction vector; then in terms of this new coordinate system

	$\underline{x}$	$\underline{y}$	$\underline{z}$
Projections	$-a$	b	$0c$
Projections in terms of a, b, and c	-1	1	0
Reduction to integers		not necessary	
Enclosure		$[\bar{1}10]$	

Direction B is a $[121]$ direction, which determination is summarized as follows. The vector passes through the origin of the coordinate system and thus no translation is necessary. Therefore,

	$\underline{x}$	$\underline{y}$	$\underline{z}$
Projections	$\dfrac{a}{2}$	b	$\dfrac{c}{2}$
Projections in terms of a, b, and c	$\dfrac{1}{2}$	1	$\dfrac{1}{2}$
Reduction to integers	1	2	1
Enclosure		$[121]$	

Direction C is a $[0\bar{1}\bar{2}]$ direction, which determination is summarized as follows. We first of all position the origin of the coordinate system at the tail of the direction vector; then in terms of this new coordinate system

	$\underline{x}$	$\underline{y}$	$\underline{z}$
Projections	$0a$	$-\dfrac{b}{2}$	$-c$
Projections in terms of a, b, and c	0	$-\dfrac{1}{2}$	-1
Reduction to integers	0	-1	-2
Enclosure		$[0\bar{1}\bar{2}]$	

Direction D is a $[1\bar{2}1]$ direction, which determination is summarized as follows. We first of all position the origin of the coordinate system at the tail of the direction vector; then in terms of this new coordinate system

	$\underline{x}$	$\underline{y}$	$\underline{z}$
Projections	$\dfrac{a}{2}$	$-b$	$\dfrac{c}{2}$
Projections in terms of a, b, and c	$\dfrac{1}{2}$	-1	$\dfrac{1}{2}$
Reduction to integers	1	-2	1
Enclosure		$[1\bar{2}1]$	