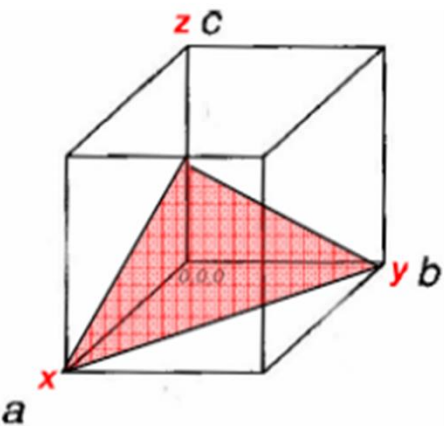
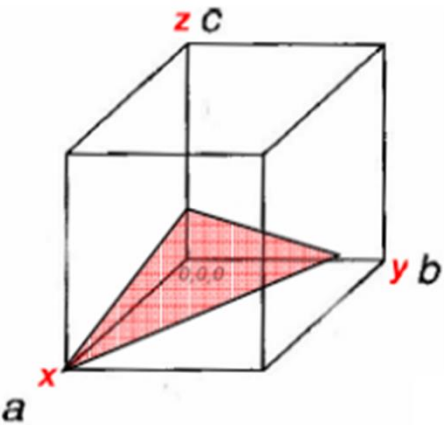
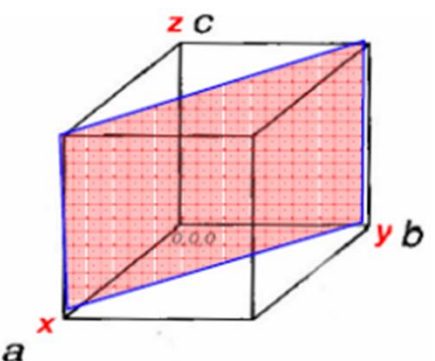


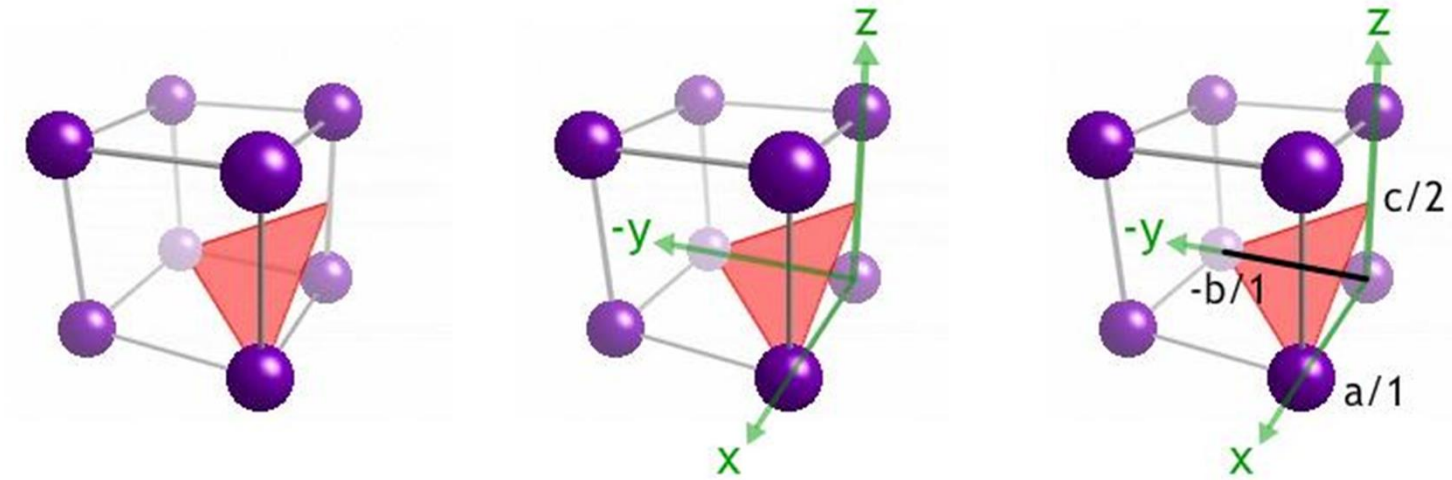
Indexing Planes

		x (a)	y (b)	z (c)
	Intercept on axes	1	1	$\frac{1}{2}$
	Reciprocal	1	1	2
	Integer Clear	1	1	2
	Miller Indices	(112)		
		x (a)	y (b)	z (c)
	Intercept on axes	1	$\frac{3}{4}$	$\frac{1}{4}$
	Reciprocal	1	$\frac{4}{3}$	4
	Integer Clear	3	4	12
	Miller Indices	(3 4 12)		

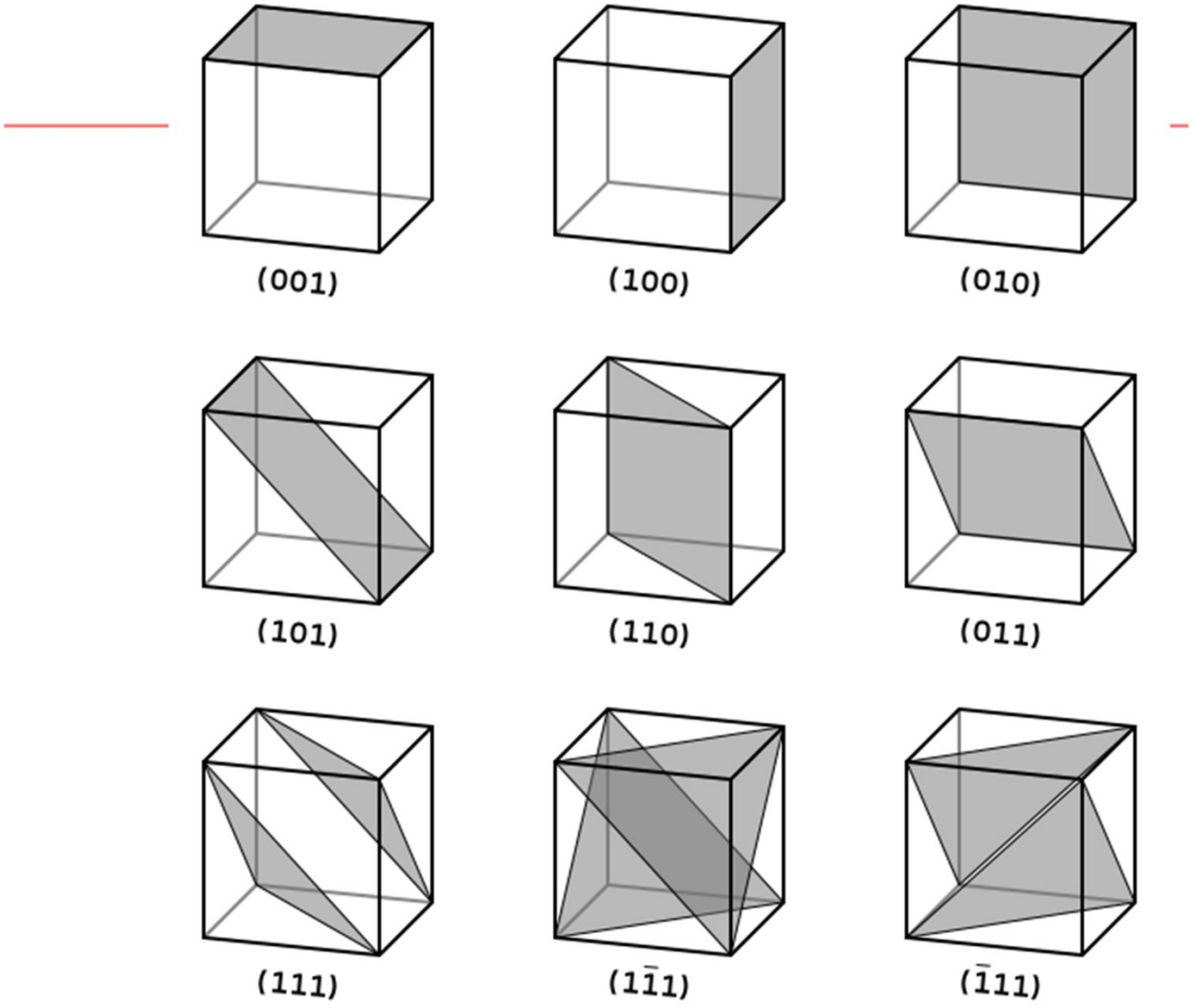
Indexing Planes

		x (a)	y (b)	z (c)
	Intercept on axes	1	1	∞
	Reciprocal	1/1	1/1	$1/\infty = 0$
	Integer Clear	1	1	0
	Miller Indices	(110)		

Problem 3: Indexing a negative plane



$(1\bar{1}2)$



Crystal imperfections are broadly classified into four major classes as below:

1) Point defects (Zero dimensional)

2) Line defects (One dimensional)

3) Planar or surface defects (Two dimensional)

4) Volume defects

1) Point Defects

- Atoms in solid possess vibrational energy, some atoms have sufficient energy to break the bonds which hold them in eqbm position. Hence once the atoms are free they give rise to **Point Defects**.

Classes of point defects:

1. Vacancy/Schottky
 2. Interstitial/Frenkel
- **Impurities**
 1. Substitution
 2. Interstitial