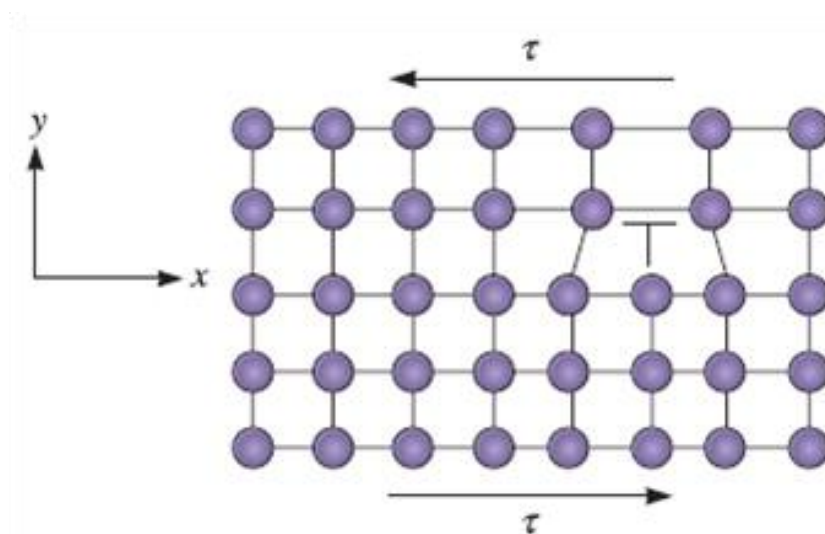


1. Complete the following table –

	Relationship between burgers vector and dislocation line	Relationship between burgers vector and motion of dislocation line
Edge Dislocation		
Screw Dislocation		
Mixed Dislocation		

2. A single crystal of a metal that has the FCC crystal structure is oriented such that a tensile stress is applied in the $[100]$ direction. If the magnitude of this stress is 3.2 MPa, compute the resolved shear stress in the $[10\bar{1}]$ direction on the (111) plane.

3. Draw a Burgers circuit around the dislocation shown below. Show the resulting burgers vector clearly in your answer. Based on this vector, what sort of dislocation is shown. Clearly state how.



4. A hypothetical metal has a density of 7.9 g/cm³. If the atomic mass and unit cell length are 55.847 g/mol and 0.286nm, what would the magnitude of the Burgers vector. Below are some equations that may be useful

$$\mathbf{b}(\text{FCC}) = \frac{a}{2}\{110\} \quad \mathbf{b}(\text{BCC}) = \frac{a}{2}\{111\} \quad |\mathbf{b}| = \frac{a}{2}(u^2 + v^2 + w^2)^{\frac{1}{2}}$$