

## HOMEWORK 10

**Optical Indicatrix and Interference Colors**

Suppose a mineral has a retardation of 350 nm. What interference color would this produce? 1) 1° orange-yellow (order & color) If this mineral is examined with a 1° red accessory plate and the fast directions of the plate and the mineral are parallel, what is the retardation? 2) 900 nm What color would this correspond to? 3) 2° orange-yellow If the fast directions are perpendicular, what will the retardation equal? 4) 200 nm What color would this correspond to? 5) 1° white

Suppose a mineral has a retardation of 200 nm. What interference color would this produce? 6) 1° white If this mineral is examined with a quarter- $\lambda$  accessory plate and the fast directions of the plate and the mineral are parallel, what is the retardation? 7) 350 nm What color would this correspond to? 8) 1° orange-yellow If the fast directions are perpendicular, what will the retardation equal? 9) 50 nm What color would this correspond to? 10) 1° black

If a mineral has  $\epsilon = 1.533$  and  $\omega = 1.577$ , what is **the** birefringence? 11) 0.044  
Is the mineral isometric, uniaxial, or biaxial? 12) uniaxial What is the optical sign? 13) Negative How many axes does this indicatrix have? 14) Two  
What is the shape of the indicatrix (be specific)? 15) Oblate ellipsoid