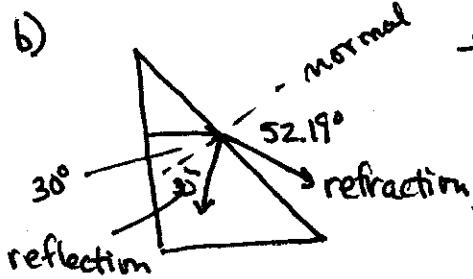A. $n = 1.5690 + \dfrac{.00531}{(.690)^2} = 1.5802 \text{ for red}$

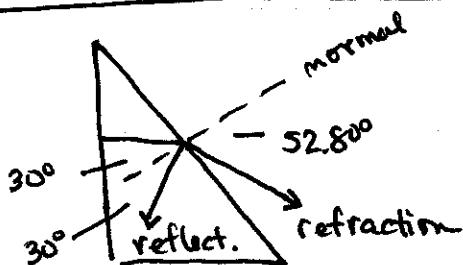$1.5690 + \dfrac{.00531}{(.470)^2} = \cancel{1.8074} \ 1.5930 \text{ for blue}$

b)

red

there is some reflection at angle 30° from normal (law of reflection). There is some refraction at angle 52.19° from normal (Snell)

$1.5802 \sin 30° = 1 \sin\theta_2 \quad \theta_2 = 52.19$

c)

reflection 30° from normal (see picture) refraction 52.80° from normal (see picture)

$1.5930 \sin 30° = 1 \sin\theta_2 \quad \theta_2 = 52.80°$