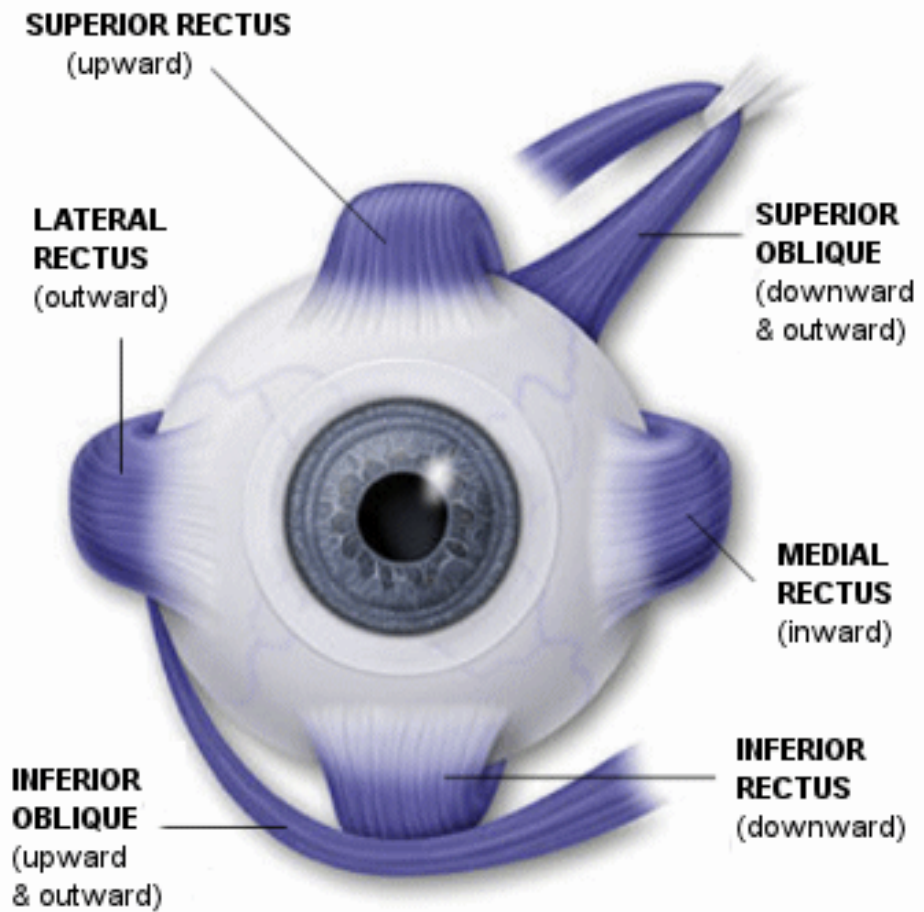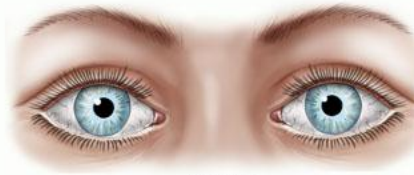# Eye Muscles & Prism Lenses

National Career Education

July 2010
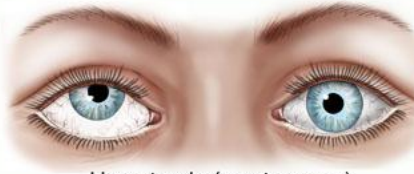
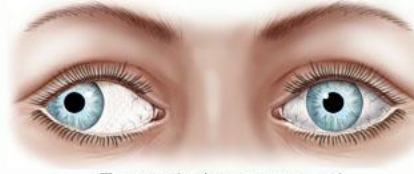**SUPERIOR RECTUS** (upward)
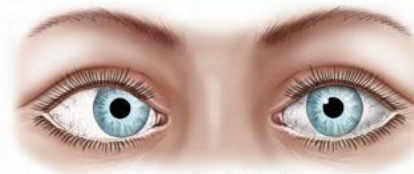
LATERAL RECTUS (outward)

SUPERIOR OBLIQUE (downward & outward)

MEDIAL RECTUS (inward)

INFERIOR OBLIQUE (upward & outward)

INFERIOR RECTUS (downward)

Strabismus

Trophia –

Definite

Certain

Obvious

Hypo - Down

Phoria –

Tendency

Hyper - Up

Drift

Exo - Out

Eso - In

Normal

Hypotropia (eye turns down)

Hypertropia (eye turns up)

Exotropia (eye turns out)

Esotropia (eye turns in)

How a prism lens may help dyslexics see better

Light bends through prism lens

Cornea

Iris

Lens

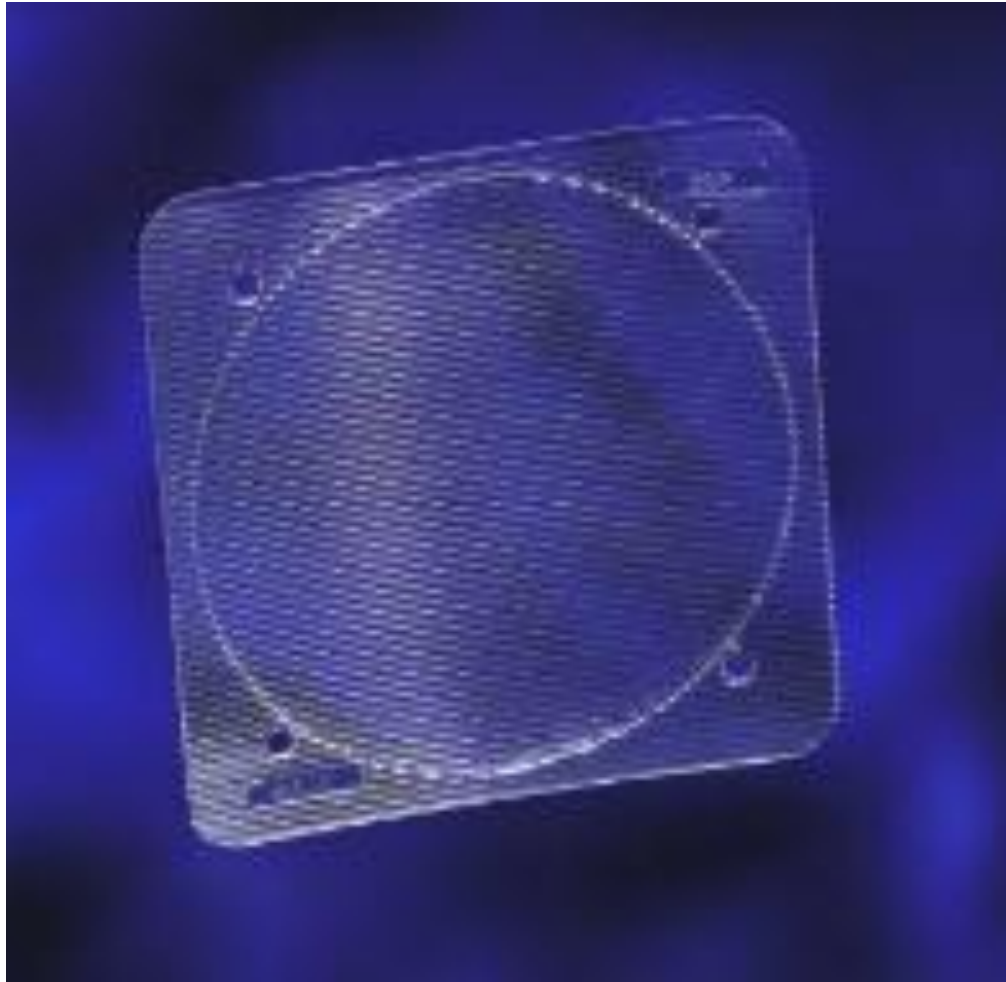The prism puts light into an area of the retina at the back of the right eye, allowing it to match the left eye.

Retina
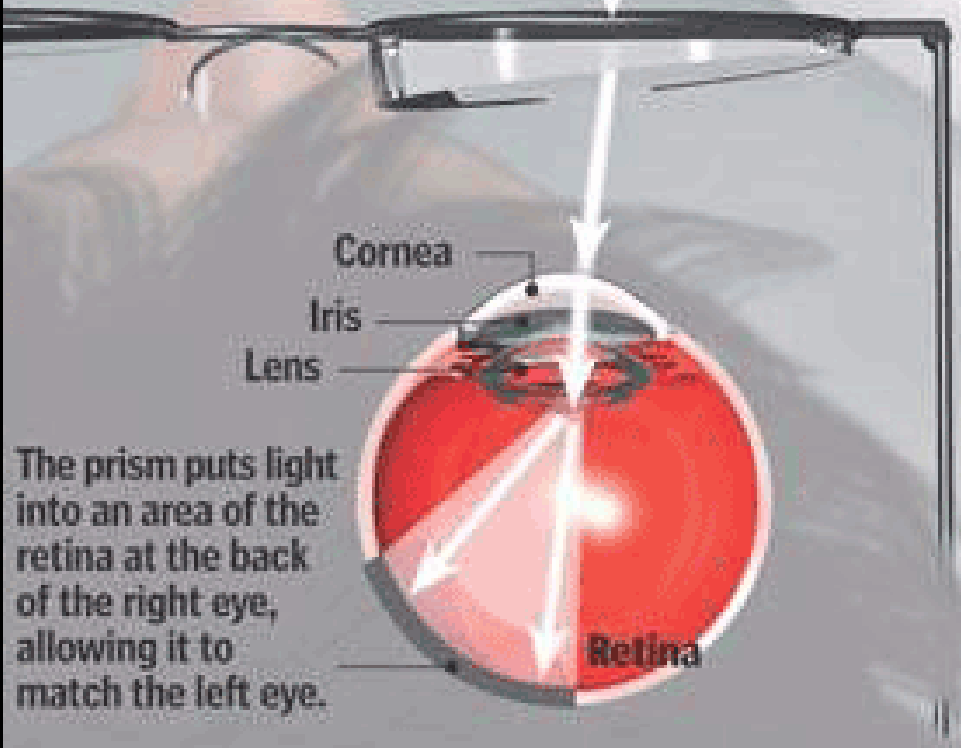
Bicentric Grinding or Slab-Off
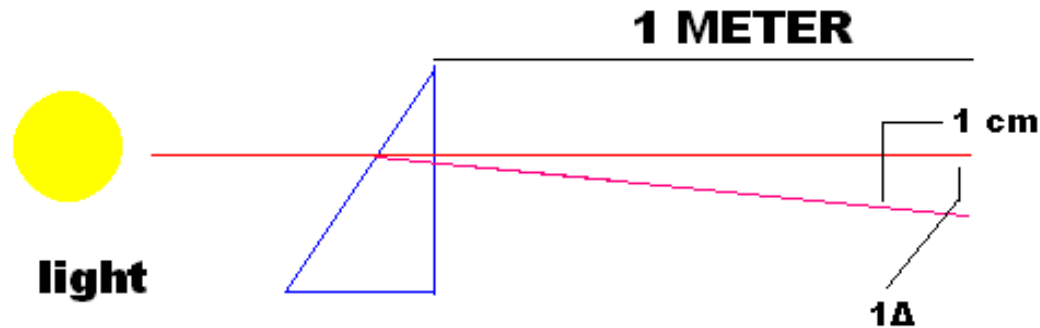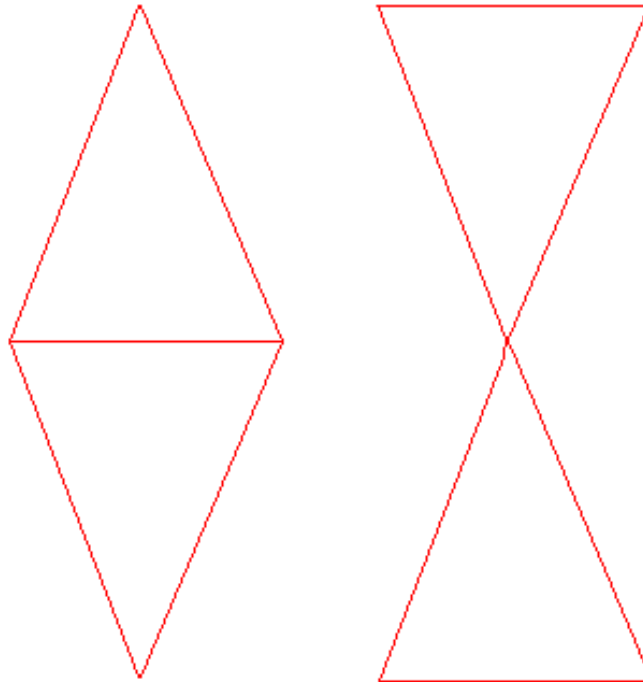
Fresnel Press-on Prism

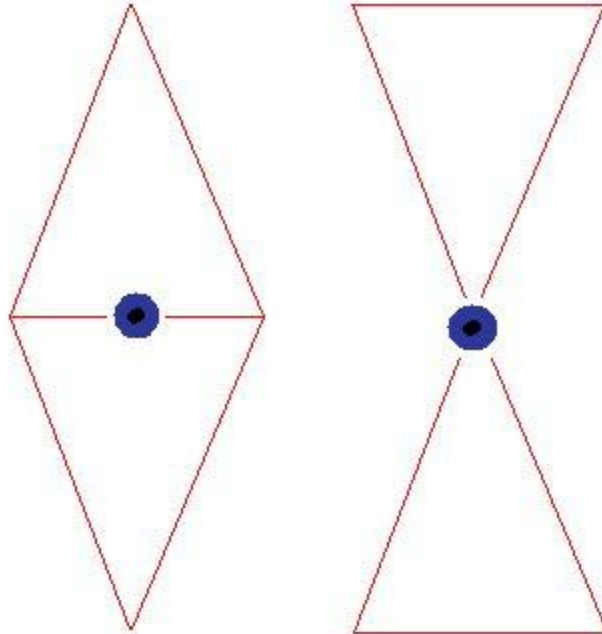# A prism deviated light 1**cm** from its normal path, measured 1**m** from the prism.
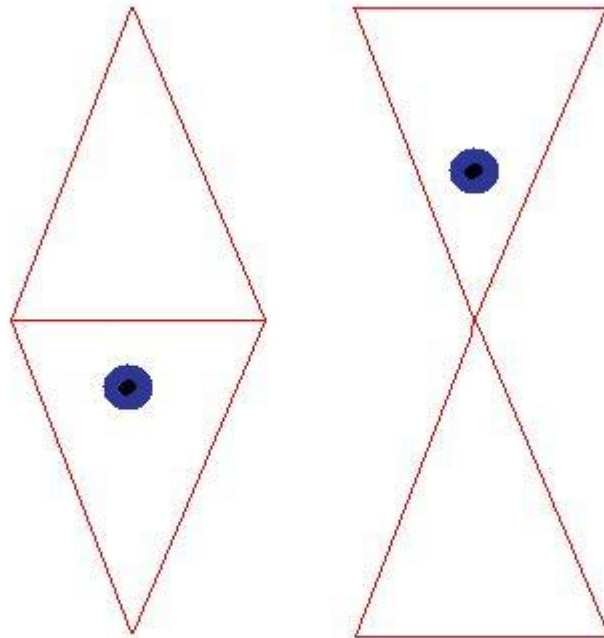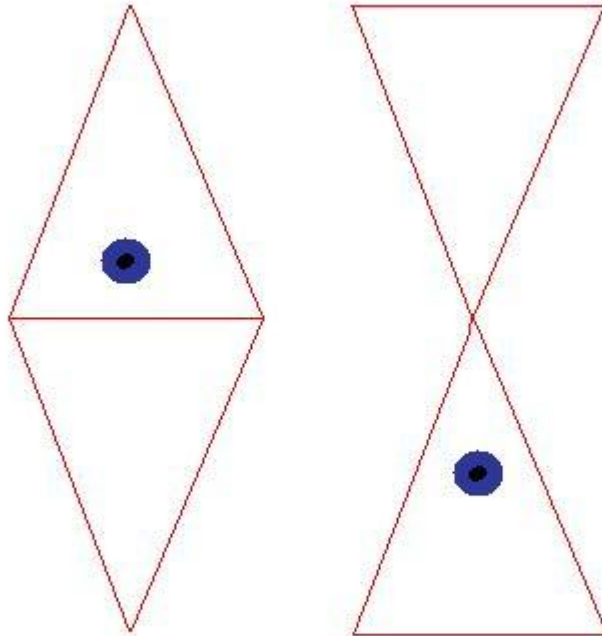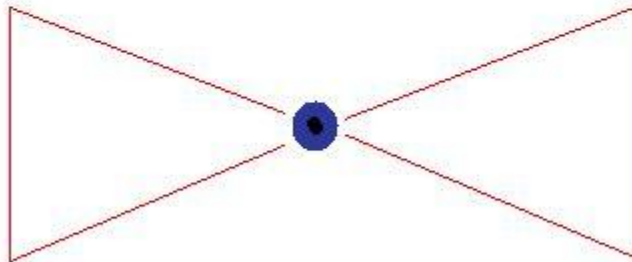
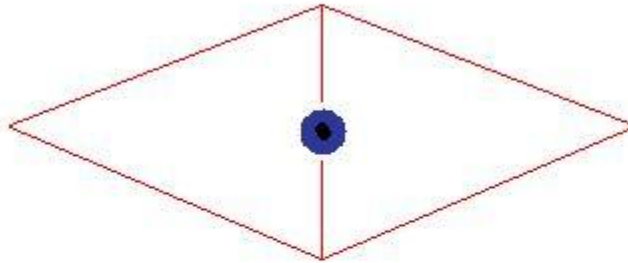$$\frac{1cm}{1m} = 1\Delta$$

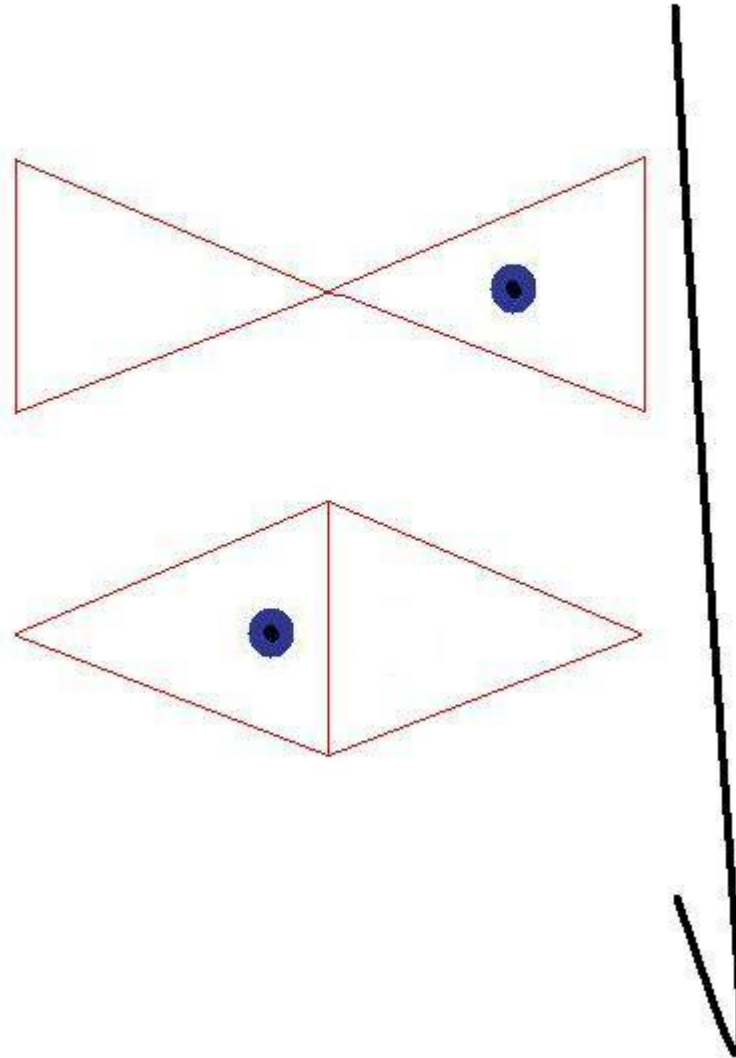# Plus and Minus

No Prism

Base Up

Base Down

No Prism

Base In

Base Out
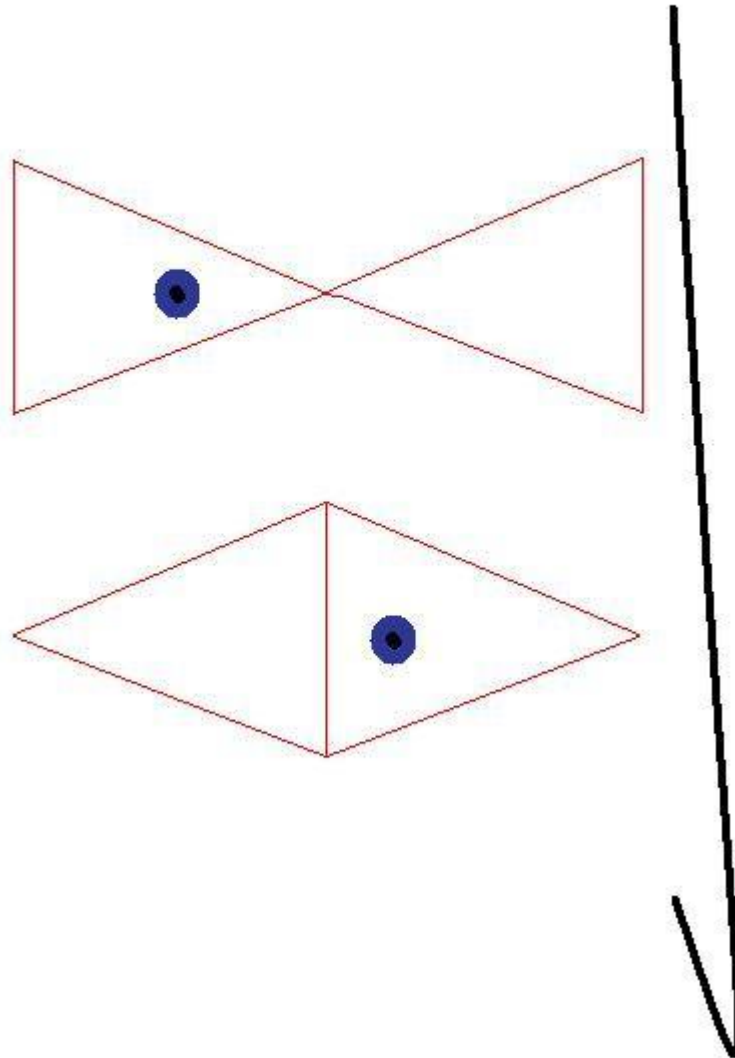
Prism Diopter

$$\frac{1CM}{1M} = 1\Delta$$

1 METER

1 cm

light

1Δ
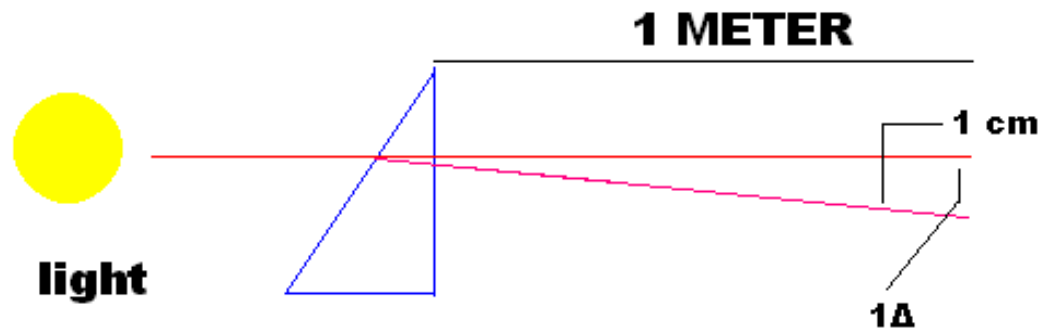
$$d = \frac{\Delta(10)}{D}$$

- d= *decentration,*
  - or distance that OC is being moved
- Δ= Prism in Diopters
- 10= Given (conversion from cm to mm)
- D= **D**iopters of power, also know as "P"

Prescription is a +2.00 with 2Δ find (d)

$$d = \frac{\Delta(10)}{D}$$

$$d = \frac{(2)10}{2.00} \qquad d = 10$$

- This lens would have to be decentered 10mm to induce 2 diopters of prism

Prescription is a -8.00 with 2Δ find (d)

$$d = \frac{\Delta(10)}{D}$$

$$d = \frac{2(10)}{8}$$

$$d = \frac{20}{8}$$

$$d = 2.5$$

- This lens would need to be decentered 2.5mm to induce 2 diopters of prism.

Prescription is -4.25 with 1.5Δ find (d)

$$d = \frac{\Delta(10)}{D}$$

$$d = \frac{1.5(10)}{4.25}$$

$$d = \frac{15}{4.25}$$

d=3.5

- This lens would need to be decentered 3.5mm to induce 1.5 diopters of prism.