Item

Exercise

1. The human eye can focus an object at different distance by adjusting the focal length of the eye lens. This is due to

A (b) Accomodation

2. The Human eye forms the image of an

object at it.

A. (d) Retina

3. The least distance of distinct vision for young adult with normal vision is about

A. (c) 25cm

4. The change in focal length of an eye lens is caused by action of the

A. (c) ciliary Muscles

5. A. (i) distant vision

Power of lens = -5.5 D

focal length = $\frac{1}{(-5.5)} = \frac{-10}{55} = \frac{-2}{11}$

$= -0.1818\,m = -0.1818 \times 100\,cm$

$= -18.18\,cm = -18.2\,cm$

So focal length is negative, lens used is Concave lens

(ii) Near vision

Power of lens = 1.5 D

focal length = $\frac{1}{(1.5)} = \frac{10}{15} = \frac{2}{3} = 0.667\,m$

$= 0.667 \times 100 = 66.7\,cm$

6. The far point of a myopic person is 50cm in front of eye. What is the nature & power of lens required to correct the problem?

A The person is suffering from eye defect called myopia. In this defect the image is formed in front of retina. Concave lens is used to correct this defect of vision

$v = -50cm$

A concave lens of power $-1.25D$ is required by person to correct the defect

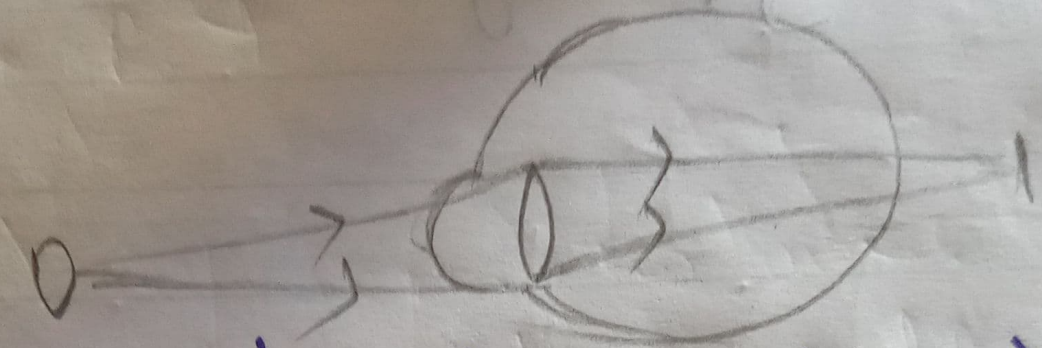
7A Hypermetropia can be corrected by using convex lens. Convex lens converges the coming light on retina,

$u = -25cm$, $v = -100cm$

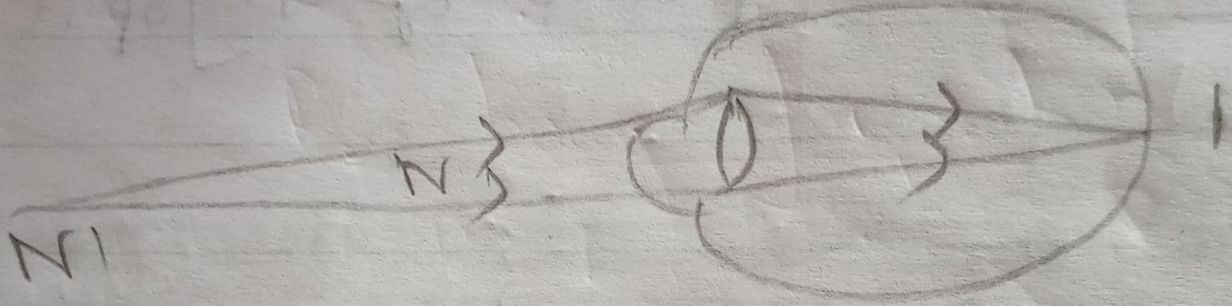
lens formula $= \frac{1}{v} - \frac{1}{u} = \frac{1}{f}$

$\frac{1}{-100} - \frac{1}{-25} = \frac{1}{f} \Rightarrow f = \frac{100}{3}cm = \frac{1}{3}m$

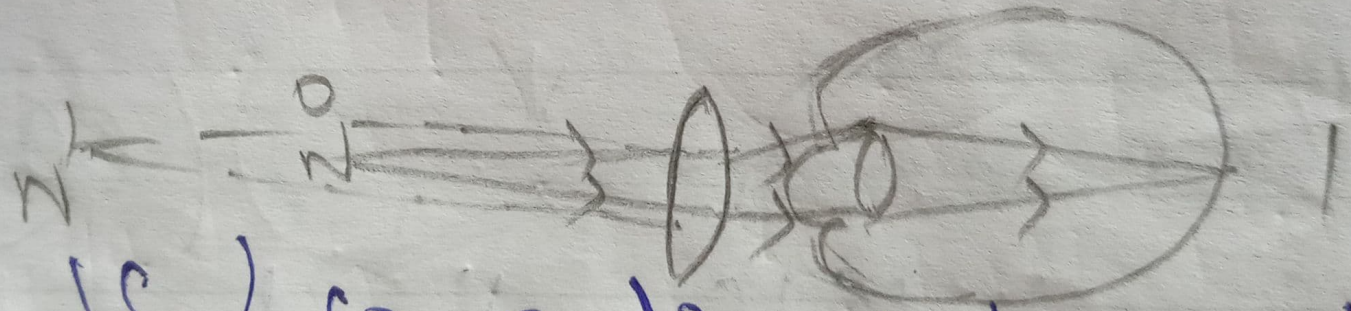
$P = \frac{1}{f} = \frac{1}{1/3} = 3D$



(a) Image formed behind reting



(b) Hypermetropic eye



(c) correction of hypermetropia