

Hence, the focal length increased.

we have,

$$\text{power (P)} = \frac{1}{f}$$

since,  $f$  increases then the power decrease.

Unit: D

## Optical Instruments

**Defects of vision :-** A normal eye can see the nearer object at 25cm from the eye called near point and can see the distant objects at infinity called far point.

If the eye cannot do so then there is a defect in the eye known as defect of vision. There are two types of defect of vision.

- (a) Myopia or short sightedness
- (b) Hypermetropia or long sightedness

### 1. Myopia or short sightedness :-

In this defect, a person can see the nearer objects clearly but cannot see the distant objects clearly. The rays of light from distant objects are focussed in front of retina so the clear image is not seen. This defect arises due to the decrease in focal length of eye lens.

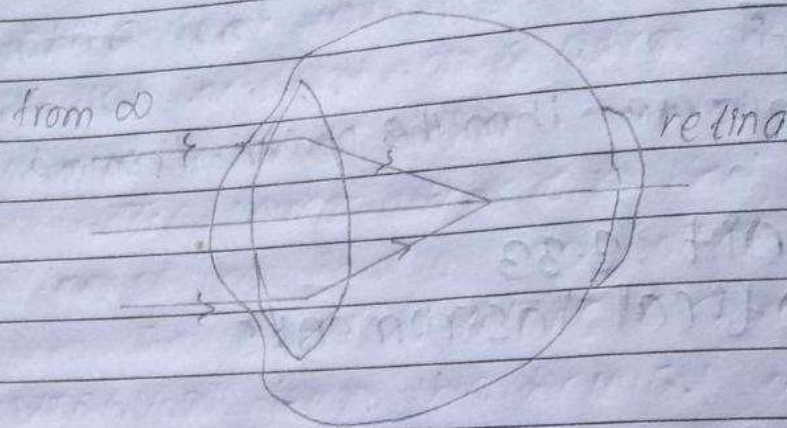


fig ①

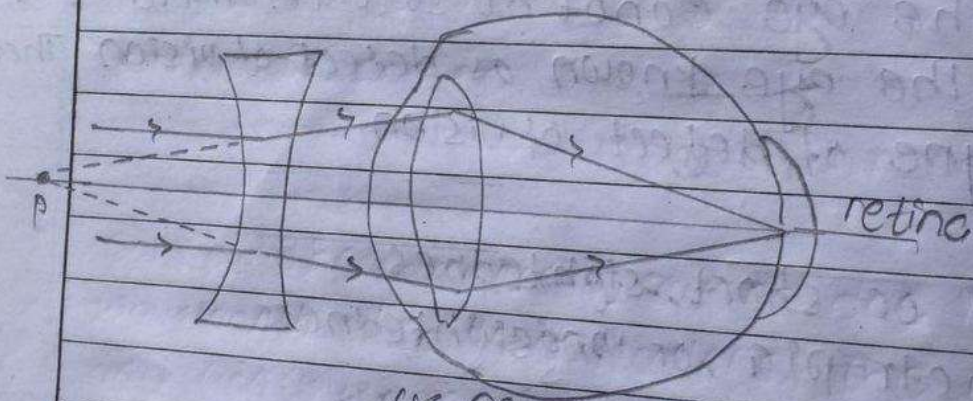


fig ②

This defect can be removed by using a diverging lens of suitable focal length such that the rays of light from infinity are focussed at retina and clear image is seen as shown in fig ②

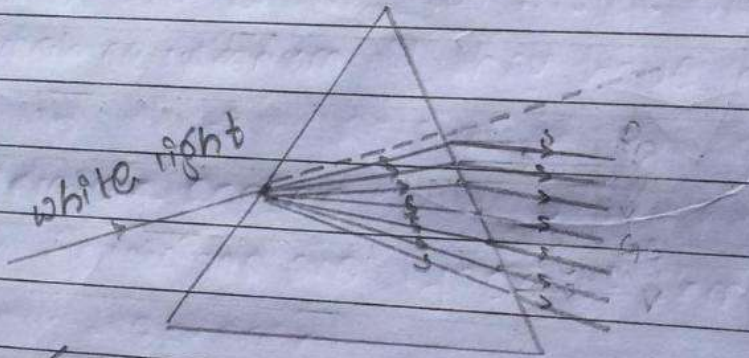
imp.

## Dispersion of light

The phenomenon of splitting a white light into its constituent colors when it is incident on a prism is called dispersion of light.

The seven colors are red, orange, yellow, green, blue, indigo and violet.

The band of colors are remembered as "VIBGYOR" from the below.



{ The dispersion arises due to the different wavelength of different colors. The wavelength of red colour is maximum and wavelength of violet color is minimum. }

2. Hypemetroopia or long sightedness:

In this defect, a person can see the distant object clearly but behind the retina so the clear image is not seen. This defect arises due to the increase in focal length of eye lens.

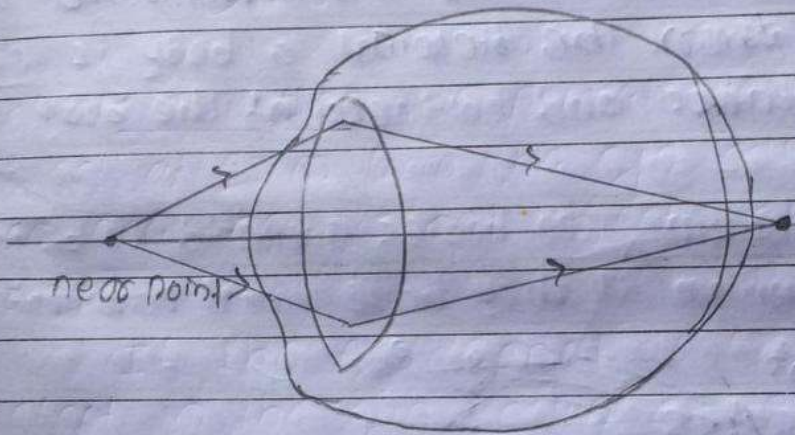


fig (1)

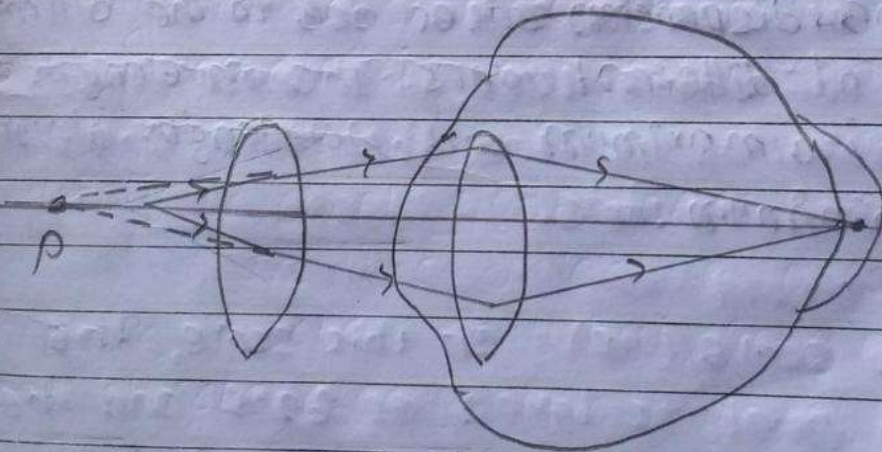


fig (2)

This defect can be removed by using a converging lens of suitable focal length such that the rays of light from near point are focussed at retina and clear image is seen as shown in fig (2)