

Exercise 1 : Eye and Vision Defects

A presbyopic eye has its near point Punctum Proximum at 50 cm and its far point Punctum Remotum at infinity.

1- Calculate its amplitude of accommodation.

2- What is the focal distance of the corrective lens that must be associated with this eye so that it can read at 20 cm with maximum accommodation?

3- Deduce the nature of this lens.

Exercise 2 : Eye and Vision Defects

Hypermetropic vision is exactly corrected by a converging lens with a power of (+3 diopters).

Deduce the position of the far point (Punctum Remotum).

Exercise 3 : magnifying glass

A myopic eye at rest can only see objects clearly at a distance of 2 meters, and its near point (pp) is at 20 cm.

1- Calculate the vergence of lens L_1 that enables clear vision of distant objects.

2- Deduce the nature of this lens.

3- What is the field of clear vision before and after correction ?

The optical center of the corrected eye is placed on the image focus of a magnifying glass with a focal distance of $f'_2 = 3$ cm.

4- What is the depth of field of this magnifying glass relative to the corrected eye?