

1. (5) An eye has a lens-to-retina distance of 1.95 cm. The power of the relaxed lens is +53.0 diopters. Calculate its far point distance in meters.

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2. (5) A person's left eye requires a contact lens whose power is +2.50 diopters for reading books held at 25.0 cm from the eye. What is this eye's near point distance in centimeters, without the contact lens?

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3. (5) A patient's eye has a far point distance of 3.5 m, but she would like to be able to focus clearly on objects out to infinity. What is the power of the contact lens needed, in diopters, to correct this eye's vision?

4. (15) A numismatist wants to examine the 0.500 mm high letters on a rare coin.

a) (5) Straining her eye, she focuses on the letters, holding the coin at her near point distance of 20.0 cm from the eye for naked eye viewing. What is the angular size in radians of the letters she sees, in radians?

b) (5) Next she views the letters through a simple magnifying lens with a focal length of 5.0 mm, with a relaxed eye. Now what is the angular size of the letters she sees, in radians?

c) (5) What is the angular magnification due to the magnifying lens, compared to naked eye viewing?