

Two light sensors in your eyes

1) Rods - binary on/off light
periphery of eye Sensors \Rightarrow They provide black/white \Rightarrow Night vision
Good for detecting motion

2) Cones - color vision \Rightarrow 3 types
center of eye Red, Blue, Green react
to different wavelengths
(Energy)

Additive vs Subtractive Mixing

Red, Blue, Green
Make white

All light is white
Absence of light is black

Art word
Red, Blue, Green
Make black

All ~~light~~ is black
Absence of light
is white.

f stops $f/$

f stops are Diaphragms that control the size of the ~~Aperture~~ ^{Aperture} to allow light into film area

Smaller Aperture \Rightarrow increased field of view

Controlling Amount of illumination

More illumination Quicker film can react

$$f/ = \frac{\text{focal length}}{\text{Diameter of the Aperture}}$$

$$\text{Speed} = \frac{1}{(f/)^2}$$

26-75

5.2 m \Rightarrow Far Point

12.0 m \Rightarrow object distance

$$f = ?$$

$$\frac{1}{f} = \frac{1}{o} + \frac{1}{i} = \frac{1}{12.0\text{m}} + \frac{1}{-5.2\text{m}}$$

\uparrow
Virtual
image

$$\frac{1}{f} = 0.0833\text{ m}^{-1} - 0.1923\text{ m}^{-1}$$

$$\frac{1}{f} = -0.1090\text{ m}^{-1}$$

$$f = \frac{1}{-0.1090\text{ m}^{-1}}$$

$$= -9.2\text{ m}$$

26-76

$$N = 65 \text{ cm}$$

a) Nearsighted or farsighted? \Rightarrow Farsighted!

b) P of lens worn 2.0 cm from eye so she can read at 25 cm?

$$P = \frac{1}{f} = \frac{1}{o} + \frac{1}{i} = \frac{1}{+23 \text{ cm}} + \frac{1}{-63}$$

$$P = 0.04348 \text{ cm}^{-1} - 0.01587 \text{ cm}^{-1}$$

$$P = 0.02761 \text{ cm}^{-1} \times \text{~~lens~~$$

$$f = \frac{1}{0.02761 \text{ cm}^{-1}} = 36.22 \text{ cm}$$

$$f = 0.3622 \text{ m}$$

$$P = \frac{1}{0.3622 \text{ m}} = +2.76 \text{ D}$$

26-79

$$\text{Far point Right eye} = 5.0 \text{ m}$$

$$\text{Far point Left eye} = 6.5 \text{ m}$$

$P =$ for prescriptive lenses for each eye?

$$P = \frac{1}{f} = \frac{1}{o} + \frac{1}{i} \quad o = \infty$$

$$P = \frac{1}{f} \quad P_R = \frac{1}{-5.0 \text{ m}} = -0.20 \text{ D}$$

$$P_L = \frac{1}{-6.5 \text{ m}} = -0.154 \text{ D}$$
