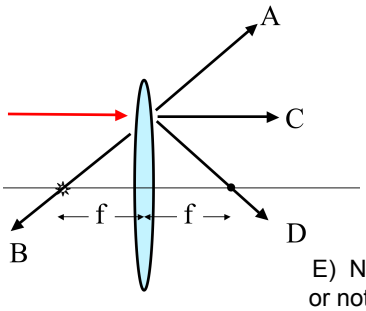
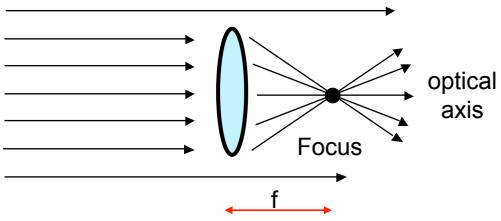
Which ray continues the red ray?

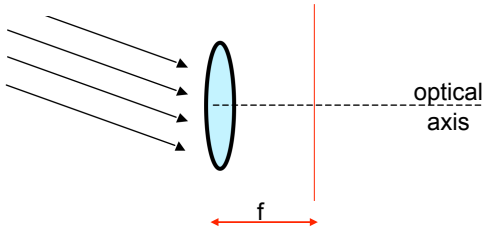


E) None of these, or not enough info!

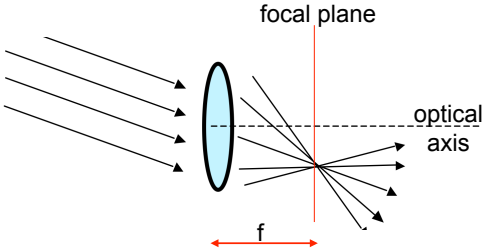
Converging lenses



Converging lenses

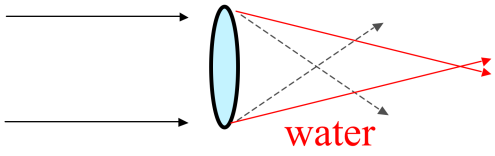


Converging lenses

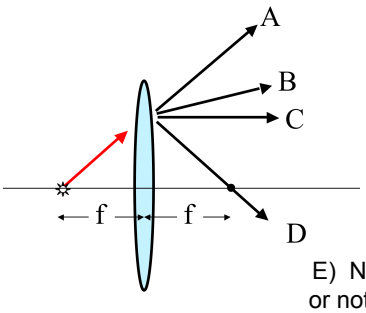


A converging glass lens has focal length
f = 20 cm when it is in air. (n_{glass} = 1.6).
When the lens is placed in water (n_{water} = 1.33),
the focal length of the lens is...

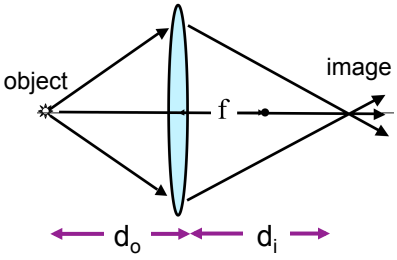
A) Unchanged.
B) Greater, f > 20 cm.
C) Smaller, f < 20 cm



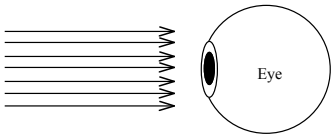
Which ray continues of the red ray?



E) None of these, or not enough info!

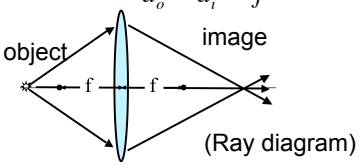


A bundle of parallel rays enter the eye's pupil.
No other rays enter. What does the eye see?



A) A single pt of light, surrounded by black.
B) A uniformly illuminated wall of light, like a white wall.
C) Scattered points of light, like stars in the sky.
D) None of these.

Lens equation: $\frac{1}{d_o}+\frac{1}{d_i}=\frac{1}{f}$

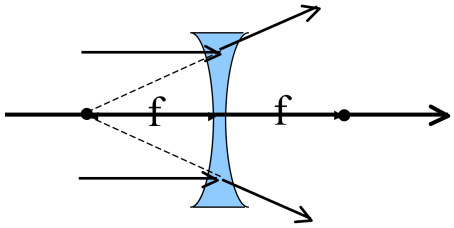


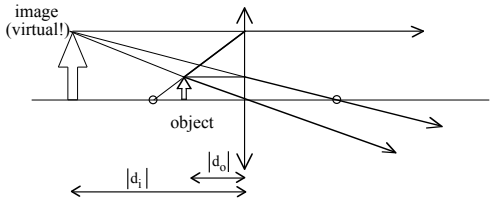
(Ray diagram)

Converging Lens:
f>0
real object behind the focus, $d_o>0$
real image in front of the focus, $d_i>0$

Lens equation: $\frac{1}{d_o} + \frac{1}{d_i} = \frac{1}{f}$

Diverging Lens: f < 0





For a magnifying glass, as shown:

A) $f > 0, \quad d_o > 0, \quad d_i < 0.$

B) $f < 0, \quad d_o > 0, \quad d_i < 0.$

C) $f > 0, \quad d_o < 0, \quad d_i > 0.$

D) $f > 0, \quad d_o > 0, \quad d_i > 0.$

An object is placed near a diverging lens. The object is closer to the lens than the absolute value of the focal length of the lens.
(I.e. the object is "inside the focus")

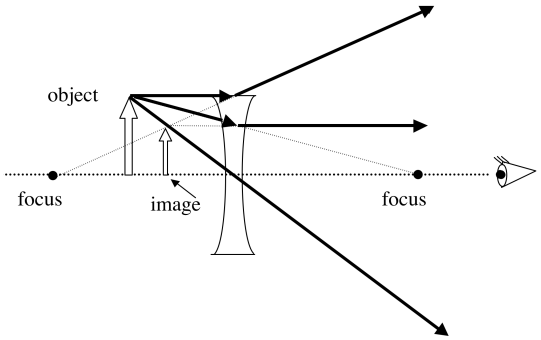
The image formed is..

A) Real B) Virtual C) there is no image.

The magnitude of the image distance is...

A) smaller than B) greater than

...the object distance.



An object is placed is placed near a diverging lens, but the object is further from the lens than the absolute value of the focal length of the lens.

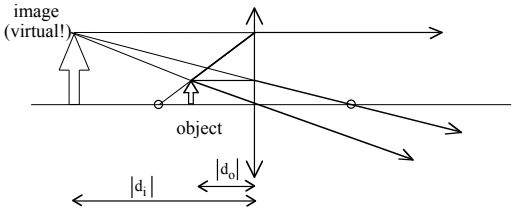
The image formed is..

A) Real B) Virtual C) there is no image.

The magnitude of the image distance is...

A) smaller than B) greater than

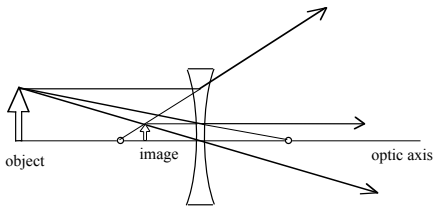
...the object distance.



If d_o = 5cm, $|d_i|$ = 15 cm, and the object height h_o is 1cm, what is the image height h_i ?

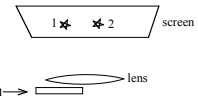
A) 2 cm B) 3 cm C) 4 cm D) Other

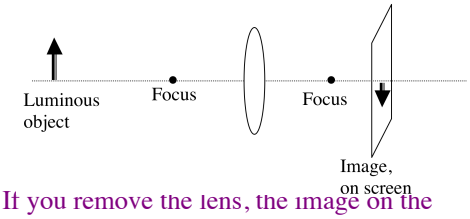
E) I don't know how to do this.



What happens to the images on the screen when the mask is inserted over the left half the lens?

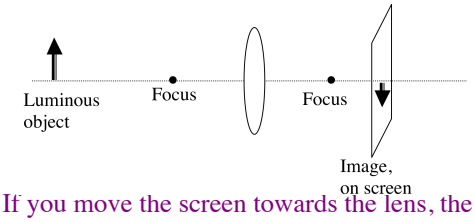
A)Image 1 vanishes
B) Image 2 vanishes
C) Something else happens





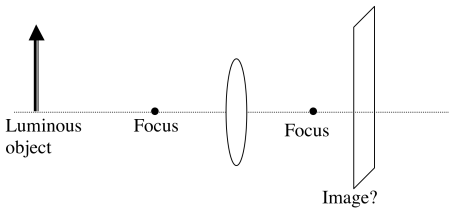
If you remove the lens, the image on the screen...

A) remains the same B) gets a bit dimmer
C) becomes fuzzier. D) becomes upright
E) disappears



If you move the screen towards the lens, the image:

A) remains the same B) gets a bit dimmer
C) becomes fuzzier. D) becomes upright
E) disappears



Note the object is taller than the lens. The image on the screen is...

A) complete B) chopped off at the top

C) chopped off at the bottom