

2.1.02-00 Laws of lenses and optical instruments



What you can learn about ...

- Law of lenses
- Magnification
- Focal length
- Object distance
- Telescope
- Microscope
- Path of a ray
- Convex lens
- Concave lens
- Real image
- Virtual image

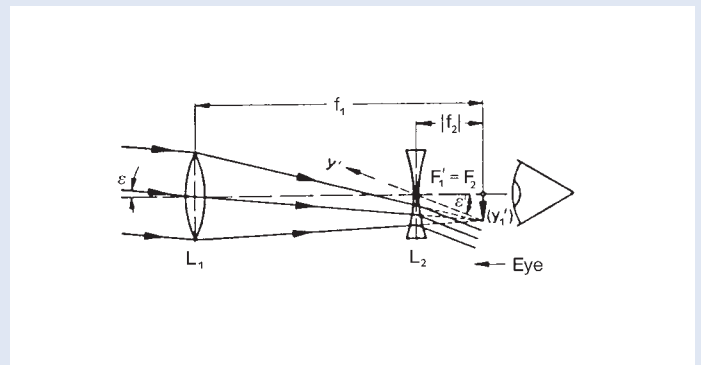
Principle:

The focal lengths of unknown lenses are determined by measuring the distances of image and object and by Bessel's method. Simple optical instruments are then constructed with these lenses.

What you need:

Lens, mounted, $f = +20$ mm	08018.01	1
Lens, mounted, $f = +50$ mm	08020.01	1
Lens, mounted, $f = +100$ mm	08021.01	1
Lens, mounted, $f = +300$ mm	08023.01	1
Lens, mounted, $f = -50$ mm	08026.01	1
Lens, mounted, $f = -200$ mm	08028.01	1
Screen, translucent, 250 mm x 250 mm	08064.00	1
Screen with arrow slit	08133.01	1
Ground glass screen, 50 mm $d = 50$ mm	08136.01	1
Double condenser, $f = 60$ mm	08137.00	1
Object micrometer 1mm i.100 parts	62171.19	1
Ctenocephalus, msl	87337.10	1
Slide -Emperor Maximilian-	82140.00	1
Optical profile bench, $l = 1000$ mm	08282.00	1
Base for optical profile bench, adjustable	08284.00	2
Slide mount for optical profil bench, $h = 30$ mm	08286.01	5
Slide mount for optical profil bench, $h = 80$ mm	08286.02	1
Diaphragm holder for optical base plate	08040.00	2
Lens holder	08012.00	2
Condenser holder	08015.00	1
Swinging arm	08256.00	1
Experimenting lamp 5, with stem	11601.10	1
Power supply 0-12 V DC/ 6 V, 12 V AC	13505.93	1
Connecting cable, 4 mm plug, 32 A, blue, $l = 50$ cm	07361.04	2
Rule, plastic, 200 mm	09937.01	1

Complete Equipment Set, Manual on CD-ROM included
 Laws of lenses and optical instruments P2210200



Path of a ray in Galileo telescope.

Tasks:

1. To determine the focal length of two unknown convex lenses by measuring the distances of image and object.
2. To determine the focal length of a convex lens and of a combination of a convex and a concave lens using Bessel's method.
3. To construct the following optical instruments:
 1. Slide projector; image scale to be determined
 2. Microscope; magnification to be determined
 3. Kepler-type telescope
 4. Galileo's telescope (opera glasses).