

Refraction of light by a divergent lens

Principle and equipment

Principle

Determine how light beams are refracted by a divergent lens.

Equipment

Position No.	Material	Order No.	Quantity
1	Demo Physics board with stand	02150-00	1
2	PHYWE Multitap transformer, DC: 2/4/6/8/10/12 V, 5 A / AC: 2/4/6/8/10/12/14 V, 5 A	13533-93	1
3	Lamp, halogen, mag. held, 12V/50W	08270-20	1
4	Light box 12V/20W, w. magn. base	09804-00	1
5	Opt. block, planoconcave, magn. held	08270-03	1
Additional material:			
	Ruler		
	Water-soluble white board pen		

Set-up and procedure

- Delimit the optical axis on the magnet optics panel.
- Position the optical block (concave lens).
- Place the magnet-held lamp with a five-slit (or threeslit) diaphragm so that the middle beam travels along the optical axis (Fig. 1).
- Shift the position of the magnet-held lamp.
- Using the magnet-held lamp and the light box, each with a one-slit diaphragm, allow two divergent beams to pass through a point labelled P (Fig. 2).
- Repeat the procedure for (at least) one additional point, which is at a different distance from the lens.
- Observe the paths of the beams.

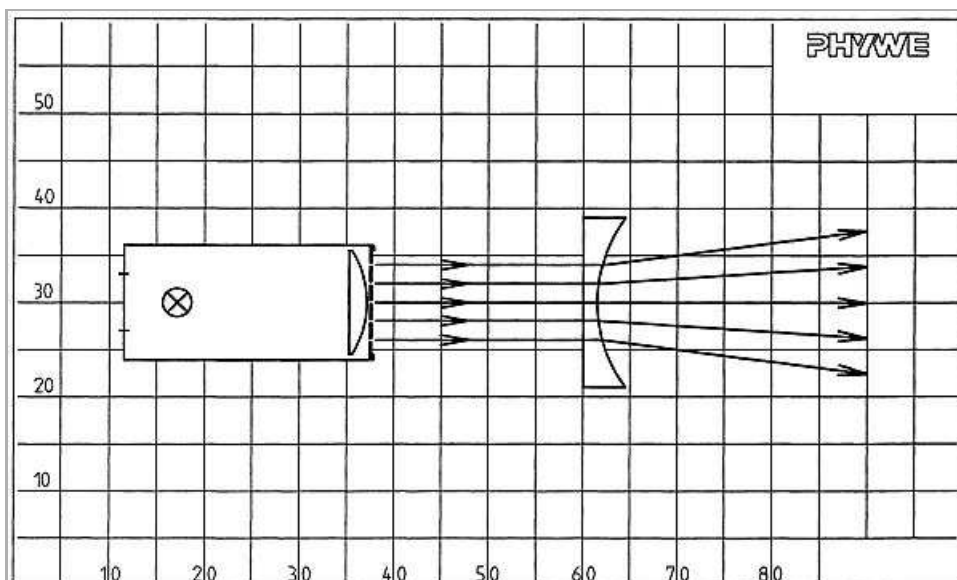


Fig. 1

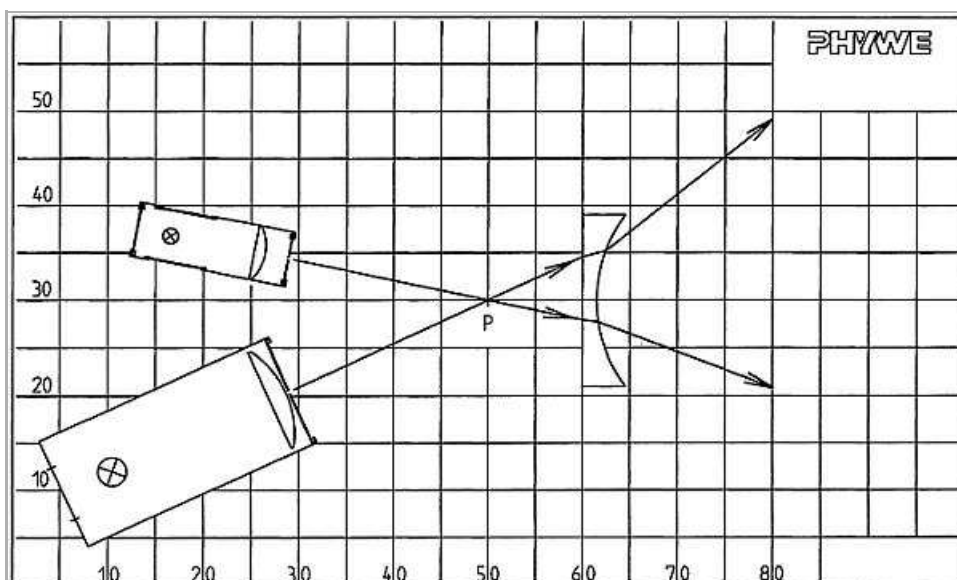


Fig. 2

Observation and evaluation

The lens refracts parallel light beams so that they diverge on passing through the lens. Divergent light beams are refracted in such a way that they are even more divergent after passing through the lens.

The extent of their divergence depends on the distance of point P from the lens. Lenses which diverge light rays are called divergent lenses.