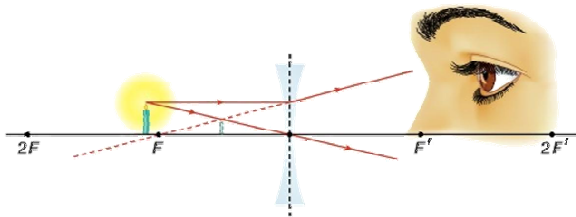


SNC2P PHYSICS

LIGHT & APPLICATIONS OF OPTICS
Images in Diverging Lenses
(P.451-452)

Locating Images in Diverging Lenses

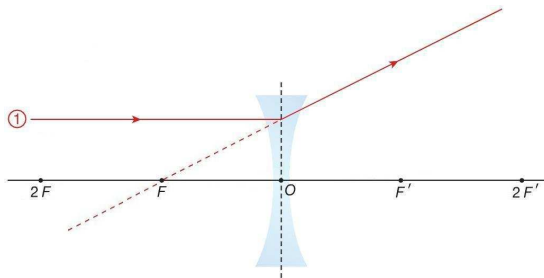
Recall that the parts of a diverging lens and the imaging rules for a diverging lens are similar to those for a converging lens. However, the difference is that the principal focus (F) is on the same side as the object and the secondary focus (F') is on the other side (i.e. they switch sides).



June 2, 2013 2DPHYS - Diverging Lenses 1

Drawing Ray Diagrams for Diverging Lenses

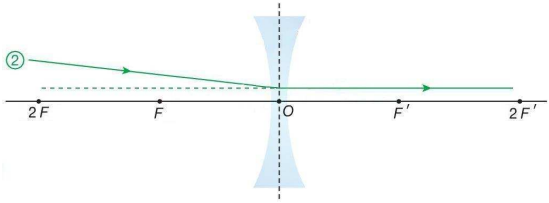
1. A light ray parallel to the principal axis (PA) is refracted as if it had come through the principal focus (F).



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Drawing Ray Diagrams for Diverging Lenses

2. A light ray aimed at the secondary focus (F') is refracted parallel to the principal axis (PA).

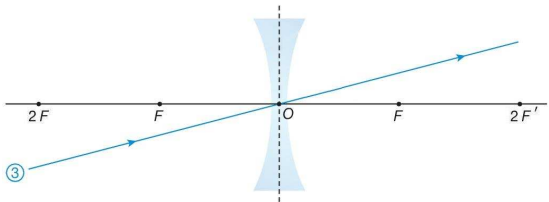


The diagram shows a diverging lens with optical center O . The principal axis has points $2F$, F , O , F' , and $2F'$ marked. A ray labeled 2 starts from the secondary focus F' and is refracted parallel to the principal axis.

June 2, 2013 2DPHYS - Diverging Lenses 3

Drawing Ray Diagrams for Diverging Lenses

3. A light ray through the optical centre (O) continues straight through without being refracted (i.e. a thin lens).



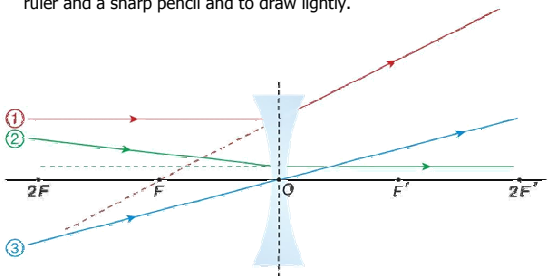
The diagram shows a diverging lens with optical center O . The principal axis has points $2F$, F , O , F' , and $2F'$ marked. A ray labeled 3 passes through the optical center O and continues straight through.

June 2, 2013 2DPHYS - Diverging Lenses 4

Activity: Drawing Ray Diagrams for ...

INSTRUCTIONS (2DPHYS - WS6)

A. Complete Part 2 (Diverging Lens Ray Diagram Rules). Be sure to use a ruler and a sharp pencil and to draw lightly.



The diagram shows a diverging lens with optical center O . The principal axis has points $2F$, F , O , F' , and $2F'$ marked. Three rays are shown: 1 (red) parallel to the axis, 2 (green) from F' , and 3 (blue) through O .

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Activity: Drawing Ray Diagrams for ...

INSTRUCTIONS (2DPHYS - WS6)
 B. Complete Part 4 (Ray Diagrams for Diverging Lenses).

NOTE!
 When drawing ray diagrams, remember the following:

- the object (real) is always shown as a solid erect arrow.
- a real image is always drawn as a solid arrow (because real rays were used to help locate it).
- a virtual image is always shown as a dotted arrow (because virtual rays were used to help locate it).

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Activity: Drawing Ray Diagrams for ...

PART 4: DIAGRAM ①
A diverging lens, regardless of the object's position, always produces the same type of image:

- smaller
- upright
- same side as object between the lens and the object
- virtual


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✓ Check Your Learning

1. What type of lens can produce:
 (a) a real image?
 (b) a virtual image?

(a) converging only
 (b) both converging and diverging

June 2, 2013 2DPHYS - Diverging Lenses 8

 Activity: Exploring Images in ... (2DPHYS-ASG1)

INSTRUCTIONS

- Read the activity "2DPHYS - ASG1 (Exploring Images in Lenses)".
- Follow the instructions given (i.e. procedure 1 to 10).
- Answer the questions given (i.e. analysis (a)-(f)).
- Submit a formal lab report.

NOTE!

- This is a formal lab report. Be sure to use complete sentences, particularly when it asks you to explain, discuss, describe, ...
- Make sure you do your "own" work!

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