

## **Tutorial Name: "Geometric Optics"**

### **Assignment 1**

As an assignment,

Place the object in other positions and check the image formed by the convex lens.

Use the table for your reference.

Follow the steps as shown in case 2.

**Table 1: Image formation by a convex lens**

<b>Object Position</b>	<b>Image Position</b>	<b>Image Size</b>	<b>Nature</b>
<b>At 2F1</b>	<b>At 2F2</b>	<b>Same size as object</b>	<b>Real, inverted</b>
<b>Beyond 2F1</b>	<b>Between F2 and 2F2</b>	<b>Diminished</b>	<b>Real, inverted</b>
<b>Between F1 and 2F1</b>	<b>Beyond 2F2</b>	<b>Magnified</b>	<b>Real, inverted</b>
<b>At F1</b>	<b>Infinity</b>	<b>Highly magnified</b>	<b>Real, inverted</b>
<b>Between F1 and O</b>	<b>On the same side as object</b>	<b>Magnified</b>	<b>Virtual, erect</b>
<b>Infinity</b>	<b>F2</b>	<b>Point Sized</b>	<b>Real, inverted</b>

**Concave lens forms a virtual and erect image on the same side of the lens between F1 and O. It is always diminished.**

## Assignment 2

As an assignment,

Place the object in other positions and check the image formed by the concave mirror.

Use the table for your reference.

Follow the steps as shown in case 1.

**Table 2 : Image formation by a concave mirror**

<b>Object Position</b>	<b>Image Position</b>	<b>Image Size</b>	<b>Nature</b>
<b>At <math>2F_1</math></b>	<b>At <math>2F_2</math></b>	<b>Same size as object</b>	<b>Real, inverted</b>
<b>Between <math>F_1</math> and O</b>	<b>Behind the mirror</b>	<b>Magnified</b>	<b>Virtual, erect</b>
<b>Beyond <math>2F_1</math></b>	<b>Between <math>F_2</math> and <math>2F_2</math></b>	<b>Diminished</b>	<b>Real, inverted</b>
<b>Between <math>F_1</math> and <math>2F_1</math></b>	<b>Beyond <math>2F_2</math></b>	<b>Magnified</b>	<b>Real, inverted</b>
<b>At <math>F_1</math></b>	<b>Infinity</b>	<b>Highly magnified</b>	<b>Real, inverted</b>
<b>Infinity</b>	<b>At the focus <math>F_2</math></b>	<b>Point Sized</b>	<b>Real, inverted</b>

## Assignment 3

Explore the Flat mirror option on your own.