

Name: **ANSWER KEY**

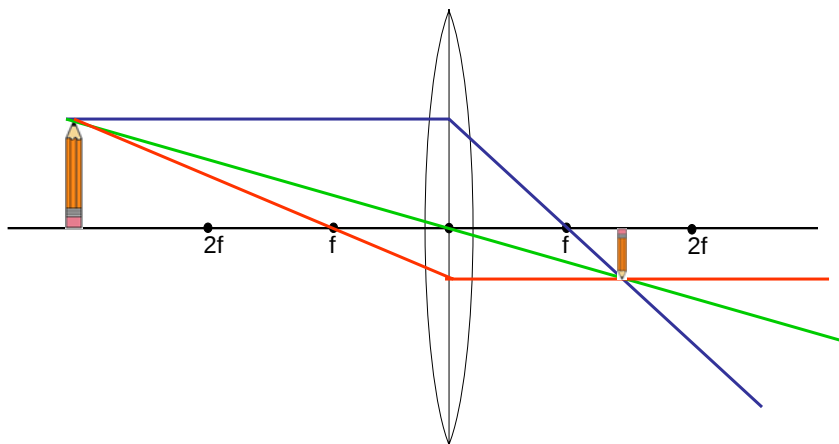
Date: _____

Section C D F

Refraction II: Ray Diagrams, Converging Lens
Real Images

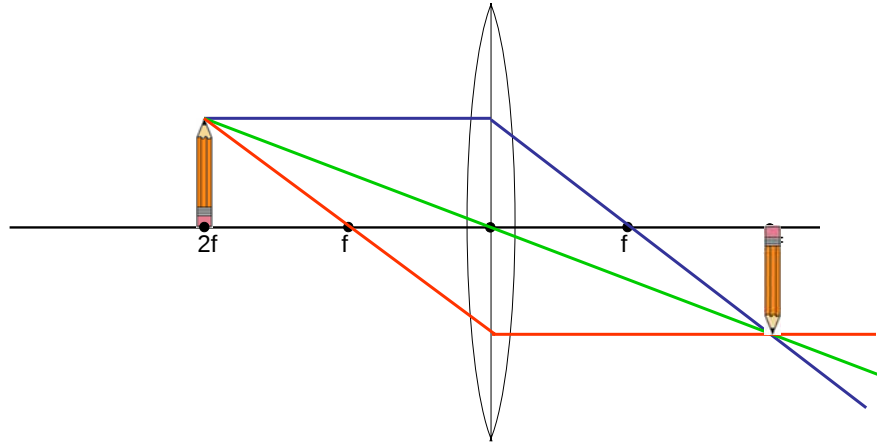
1. **For the following images, please draw the ray diagrams.**
2. The following slides illustrate an image being refracted by a converging lens. The only element that changes is the object distance, and from that the image distance changes, as well as the image height and magnification. Certain elements are the same, such as focal length and height of the object.
3. Remember the 3 rules of lenses:
 - i. Any ray that travels parallel to the principal axis refracts through the focal point.
 - ii. Any ray that travels through the focal point refracts parallel to the principal axis.
 - iii. Any ray that travels through the center continues straight.
4. Rays must converge to create an image point.
5. Please consult the textbook pages 568-577 to ensure that your diagrams are correct.
6. Please use the "Links" page on [*The Vault*](#) for supplemental applets, diagrams, and explanations.

Object Distance greater than $2f$



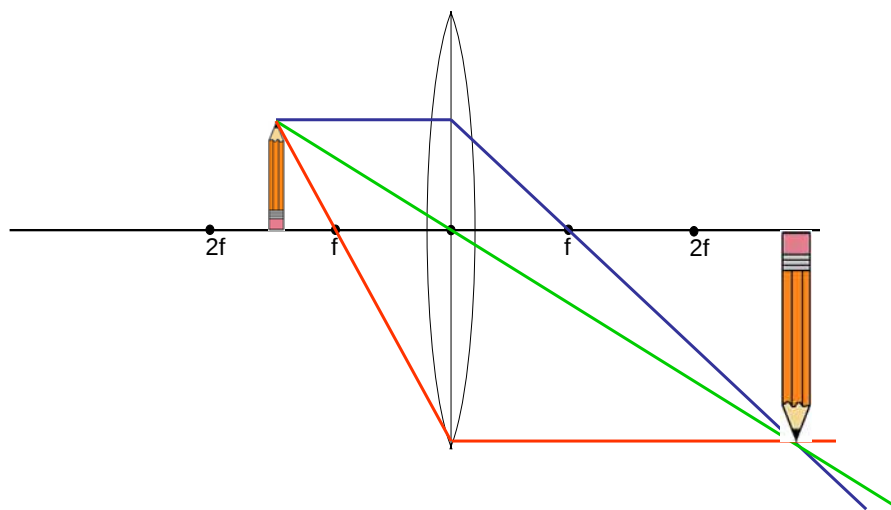
Converging Lenses

Object Distance at $2f$



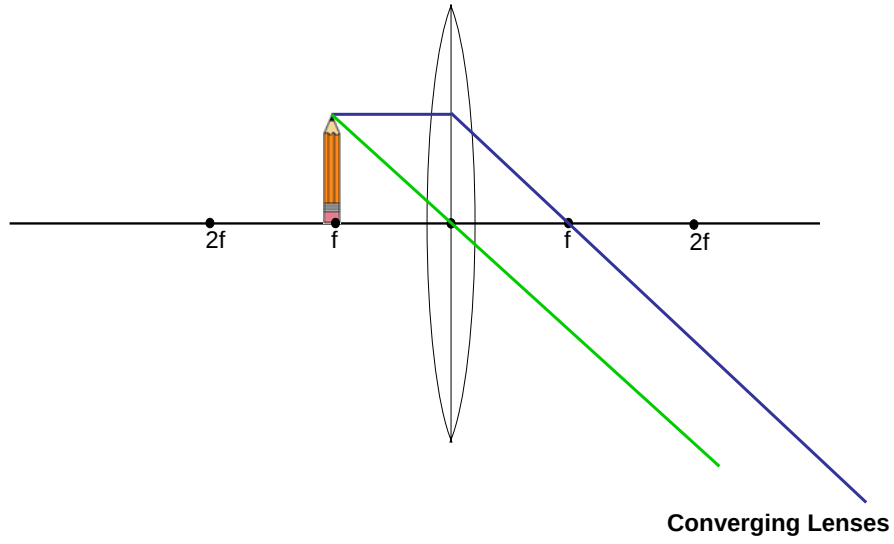
Converging Lenses

Object Distance less than $2f$



Converging Lenses

Object Distance at f



Object off Principal Axis

