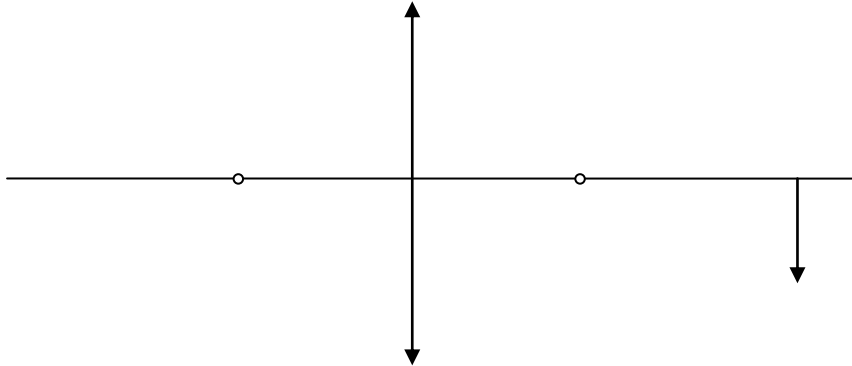
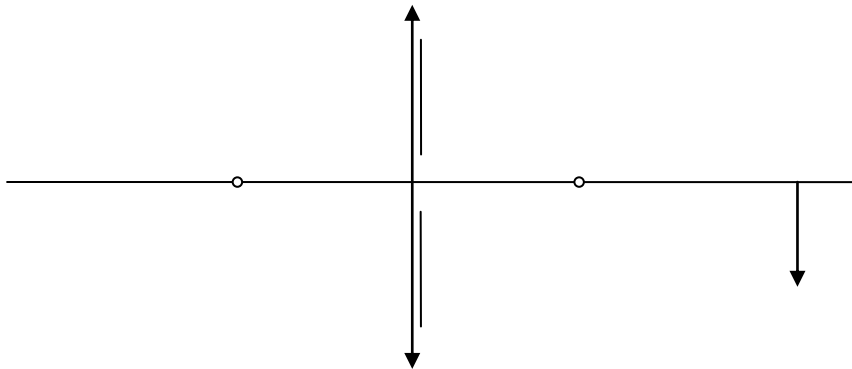


WS 19 Distortion

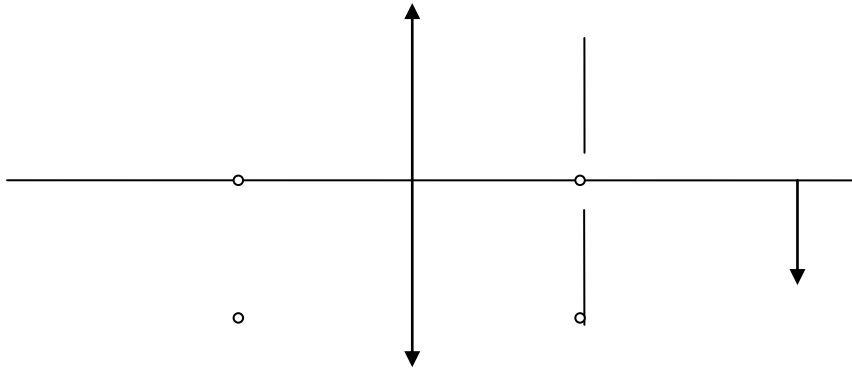
Consider the following situation: Determine the location of the image and calculate the magnification.



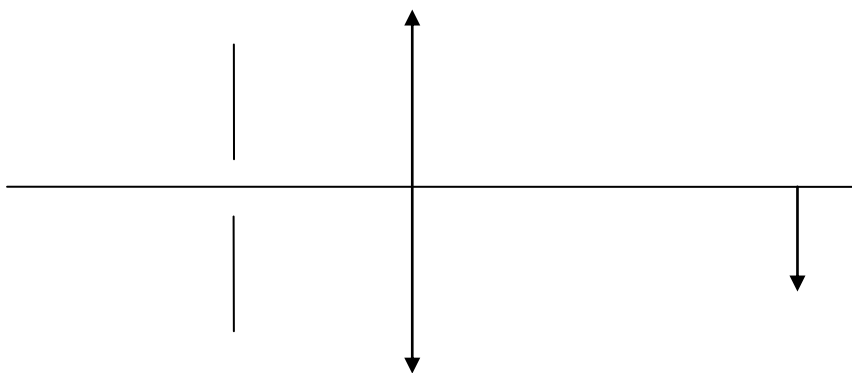
Now, imagine an aperture is placed right in front of the lens as shown. Determine the image location and sketch the pencil of rays that can start from the top of the object and reach the image. How does this aperture change your image? How does this aperture change the magnification? Consider the ratio of distances from the top of the object to the top of image and from the bottom of the object to the bottom of the image. How do those ratios compare to the magnification of the object?



Now imagine that the aperture has been moved closer to the object. Determine the image location and sketch the pencil of rays that can start from the top of the object and reach the image. How does this aperture change your image? How does this aperture change the magnification? Consider the ratio of distances from the top of the object to the top of image and from the bottom of the object to the bottom of the image. How do those ratios compare to the magnification of the object?



Now imagine that the aperture has been moved closer to the image. Determine the image location and sketch the pencil of rays that can start from the top of the object and reach the image. How does this aperture change your image? How does this aperture change the magnification? Consider the ratio of distances from the top of the object to the top of image and from the bottom of the object to the bottom of the image. How do those ratios compare to the magnification of the object?



Summarize your “observations” and consider if the magnification is uniform. Also comment on which, if any of the aperture locations will produce a distortion and which type of distortion.