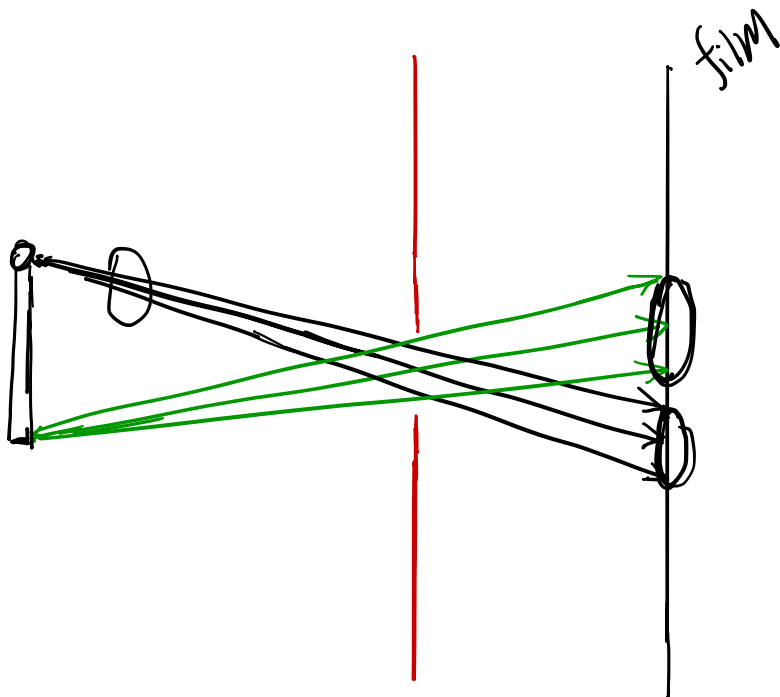
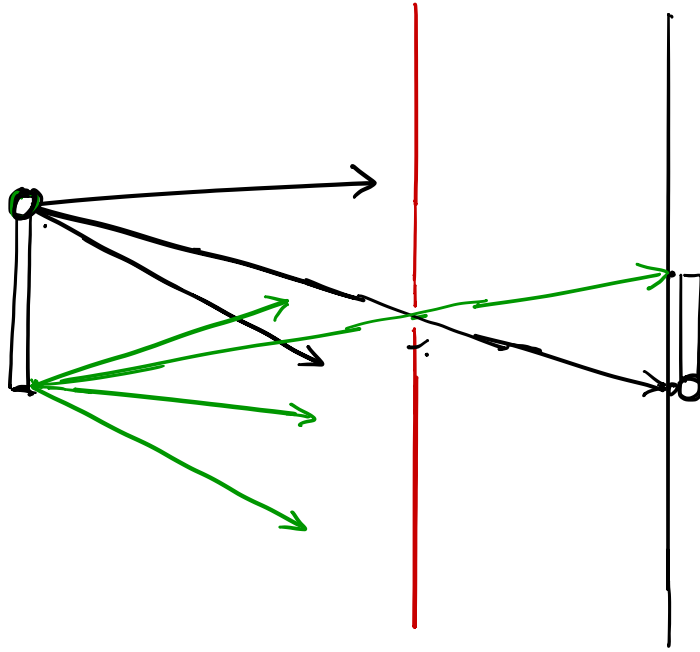
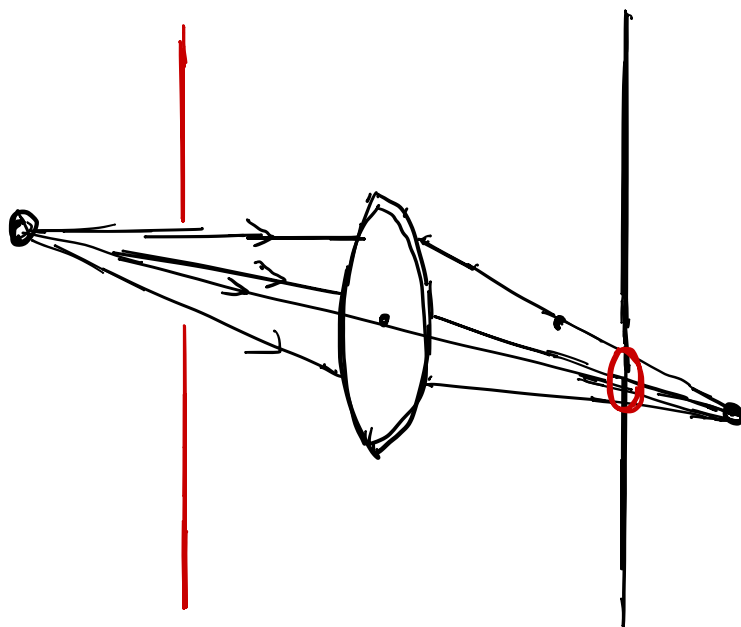
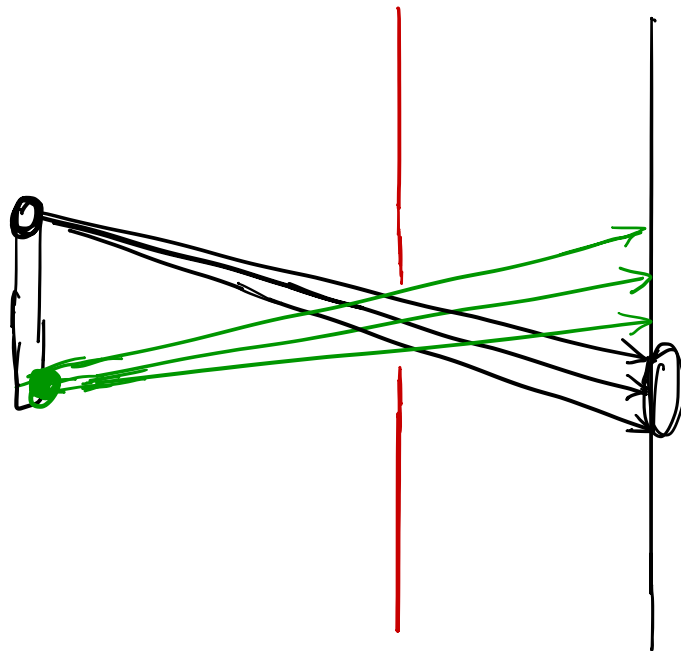


⇐ photographic film

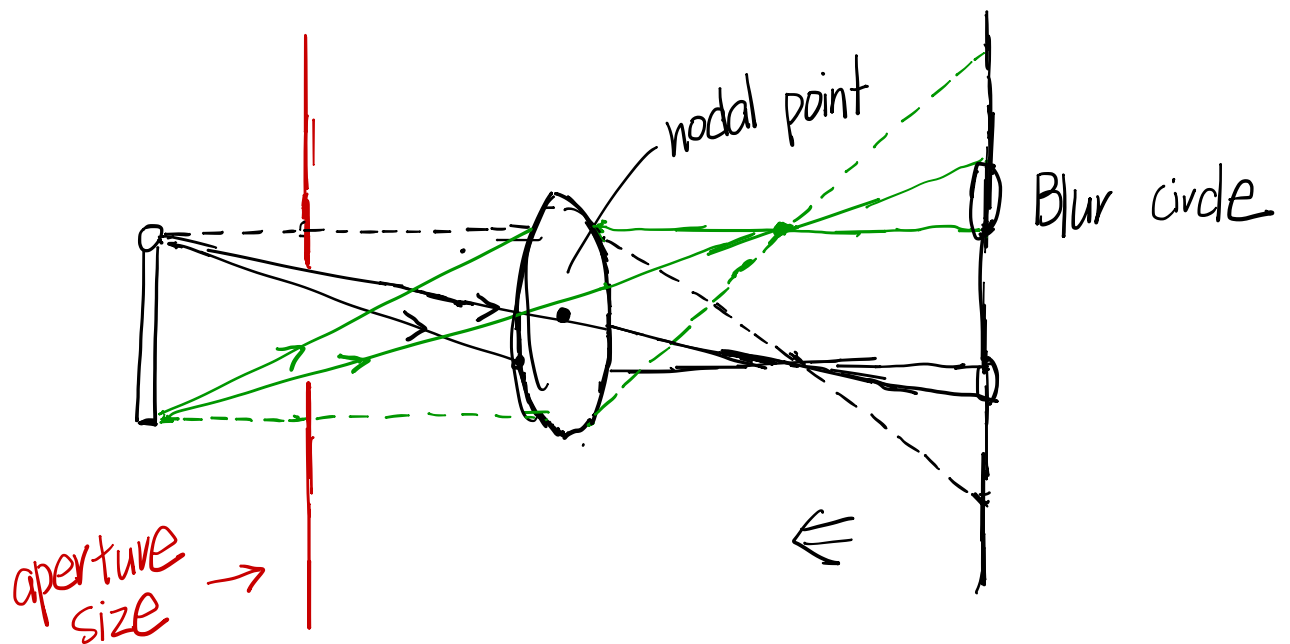
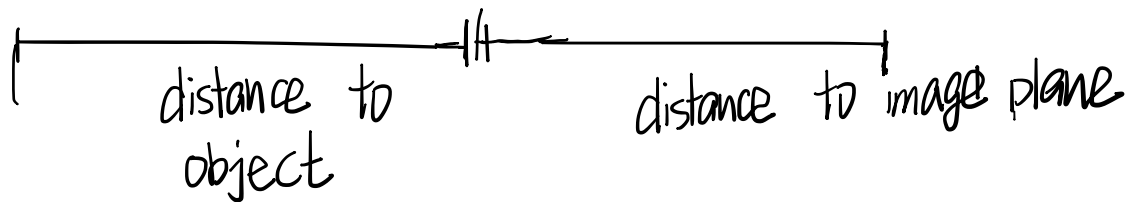
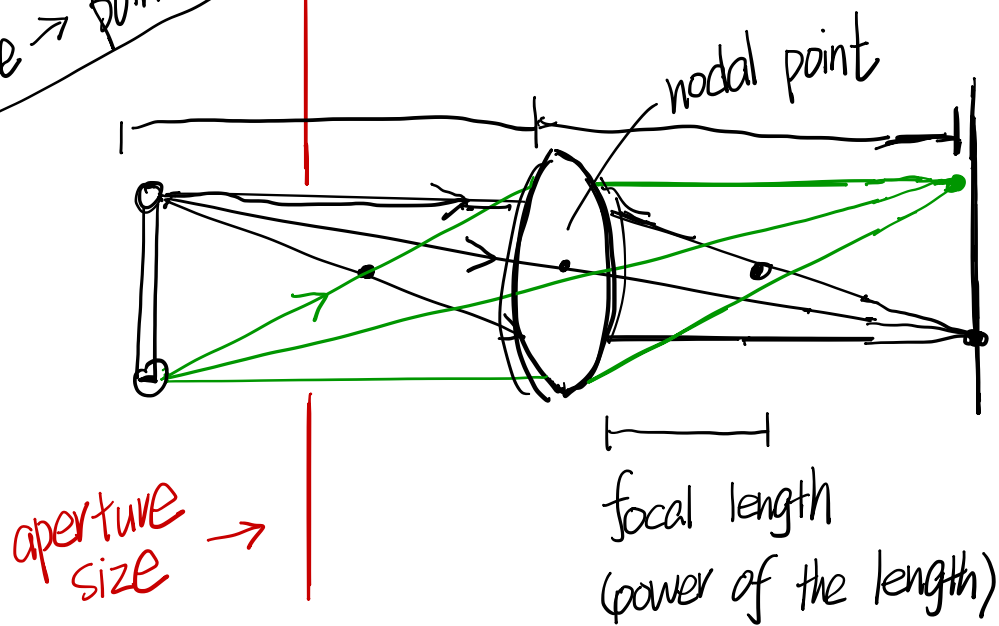
pinhole camera



lens:
point source \rightarrow point image



lens:
point source \rightarrow point image

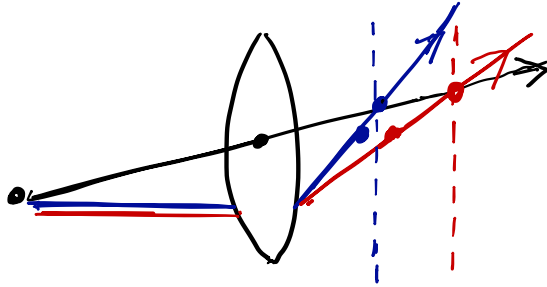


factors determine the quality of image

- Focus Error

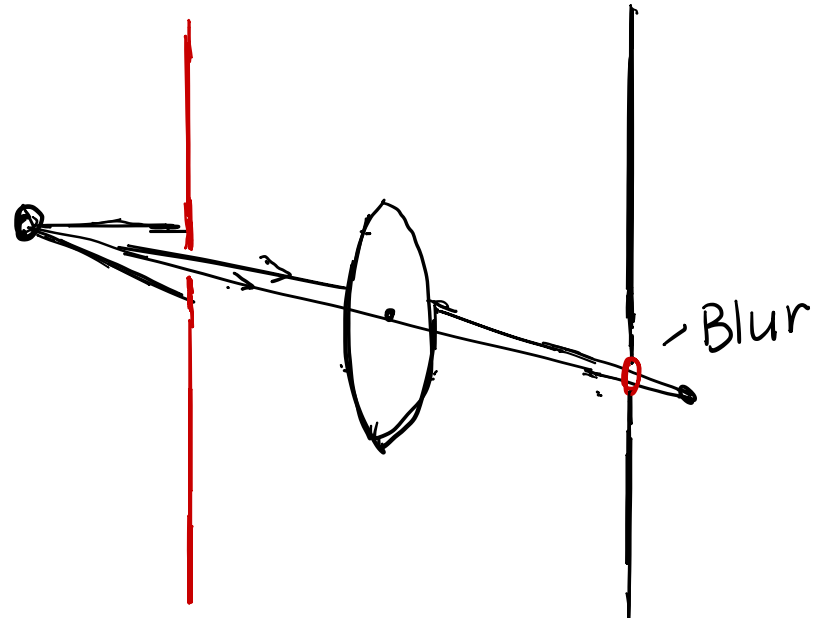
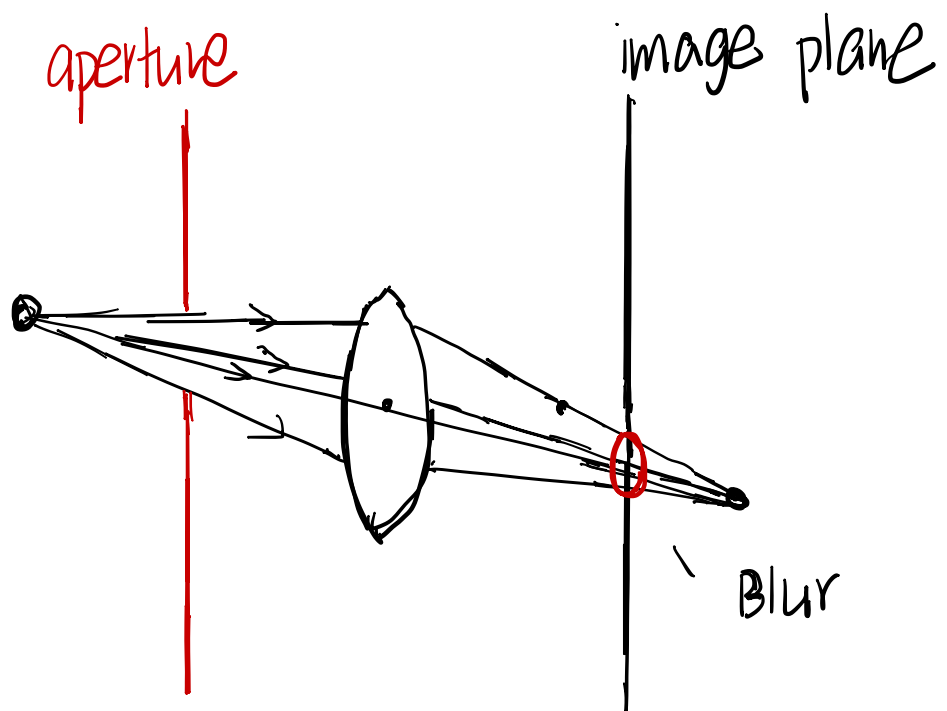
myopic / hyperopic

- Chromatic Aberration



- Blur miniaturization

Sharpness Gigantification



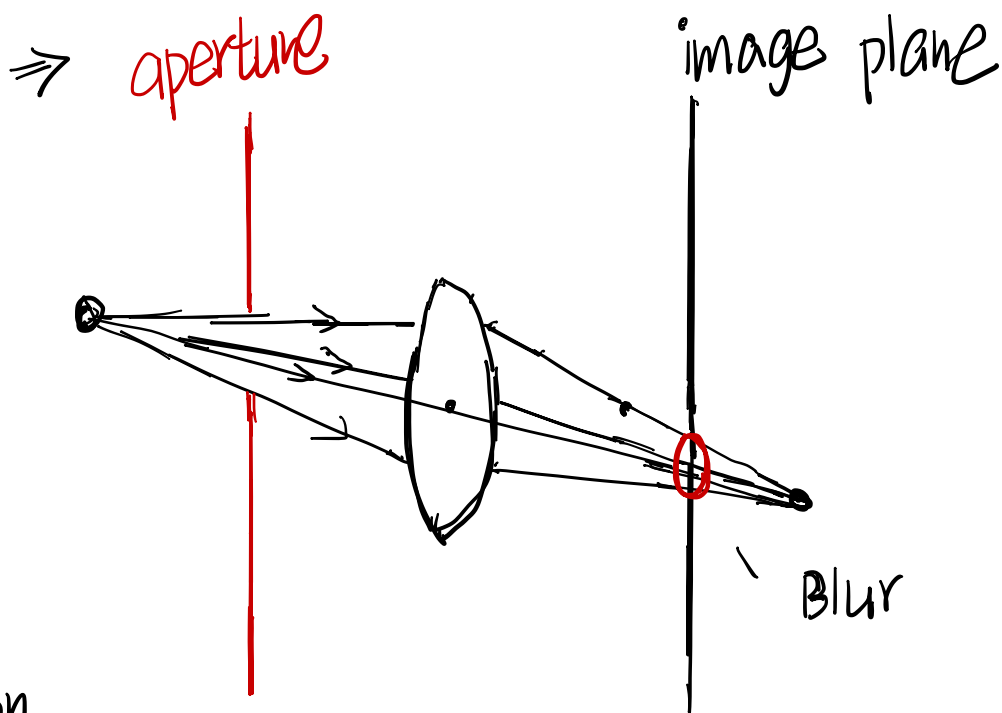
① proportional change

② • focus error / point image

$d_i, d_o, 1/f$

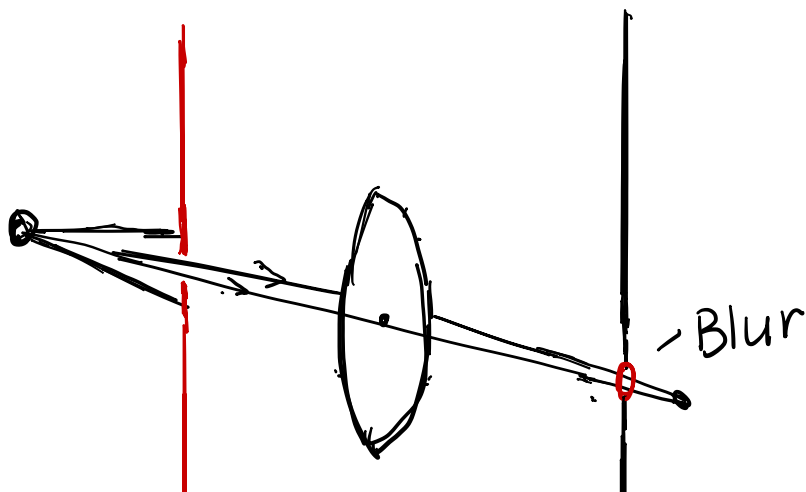
↗
corrective lens

• image quality / "focus"

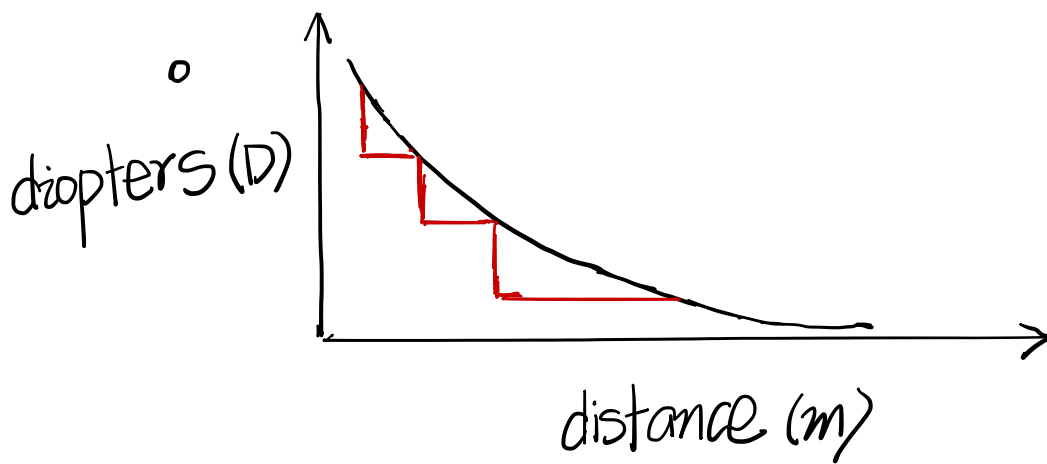


* noise

* diffraction



③ diopter



- measure defocus
- the power of the lens

④ broadband amplitude

⑤ ↓ aperture
 { amount of noise
 { diffraction

* Amplitude spectrum

* combined example

optical blur, chromatic aberration, amplitude spectrum