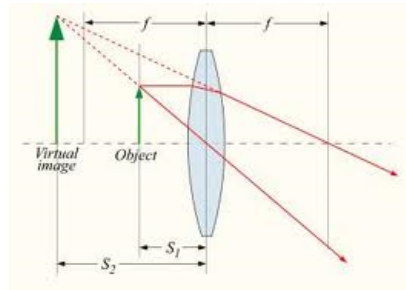


get one of each lens, and a ray tracing diagram sheet

Lecture: Ray tracing diagrams & the Thin Lens Equation

RETAKE → WED  
(ELECTROMAGNETISM)  
Chaps 22 & 23

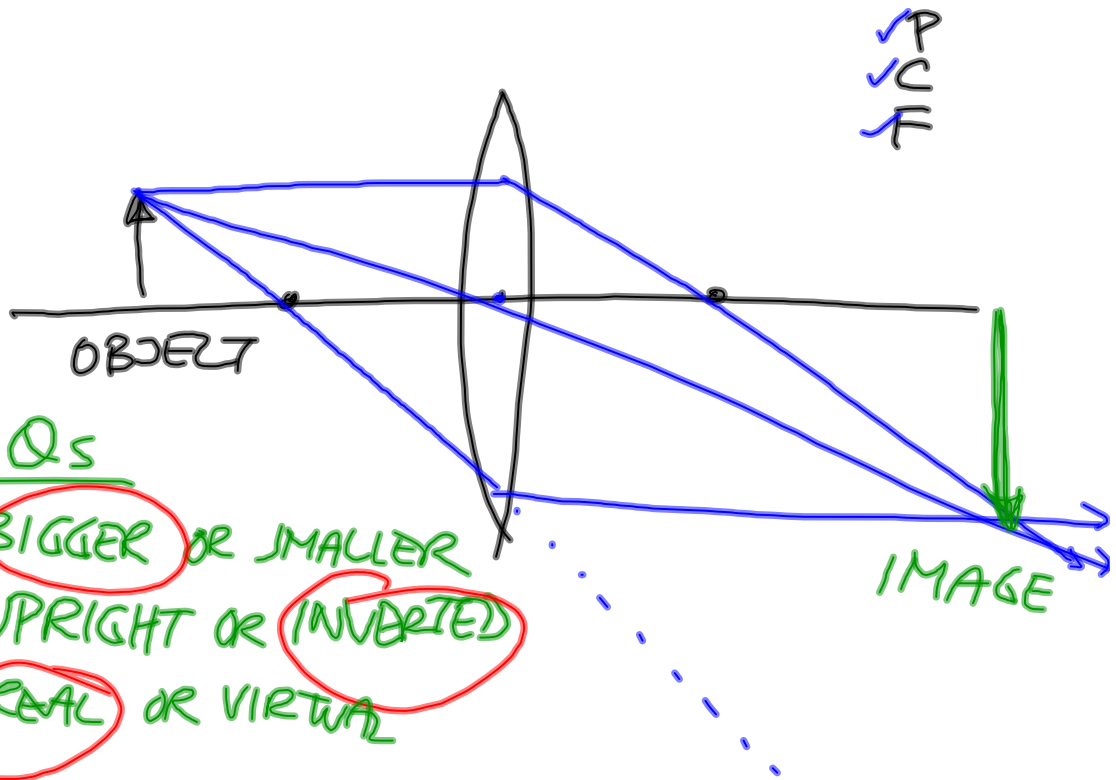


May 23-7:35 AM

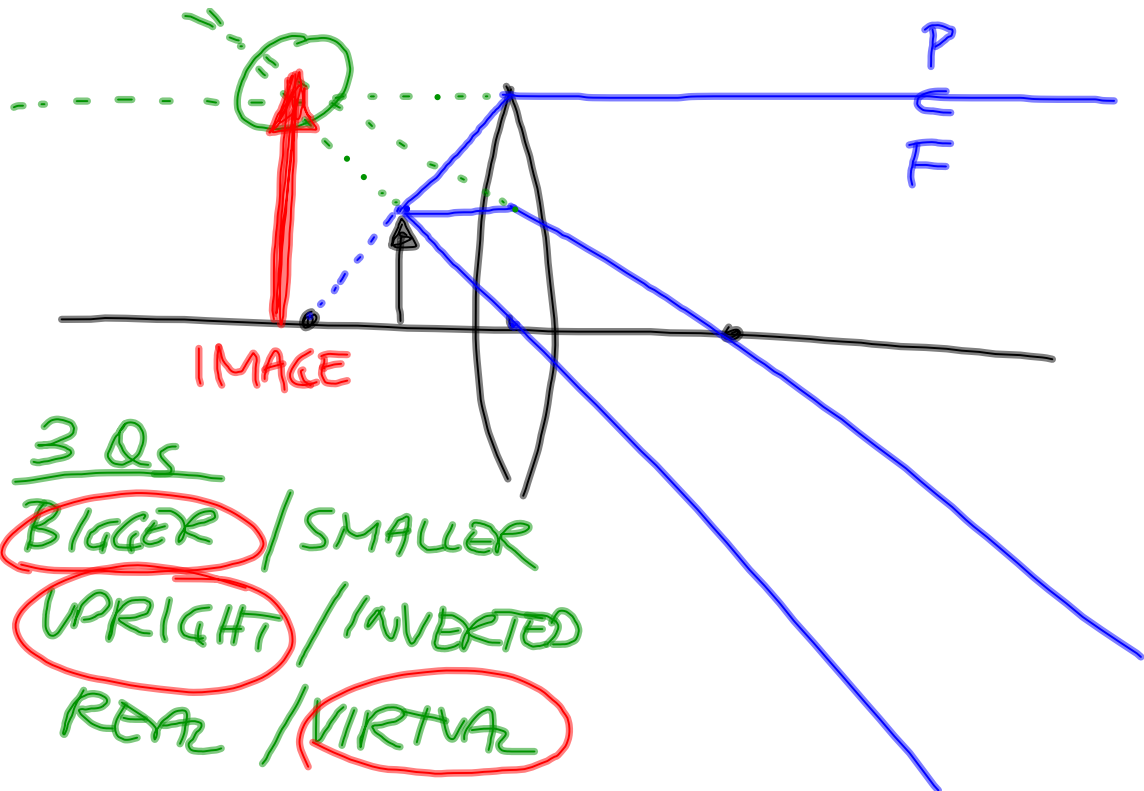
### OVERALL GUIDELINES

- DRAW 3 LINES
  - ① PARALLEL
  - ② CENTER
  - ③ FOCAL PT (THE OTHER ONE)
- ALL LINES START FROM THE ARROWHEAD
- ALL GO TOWARDS THE LENS
- STOP & THINK @ LENS

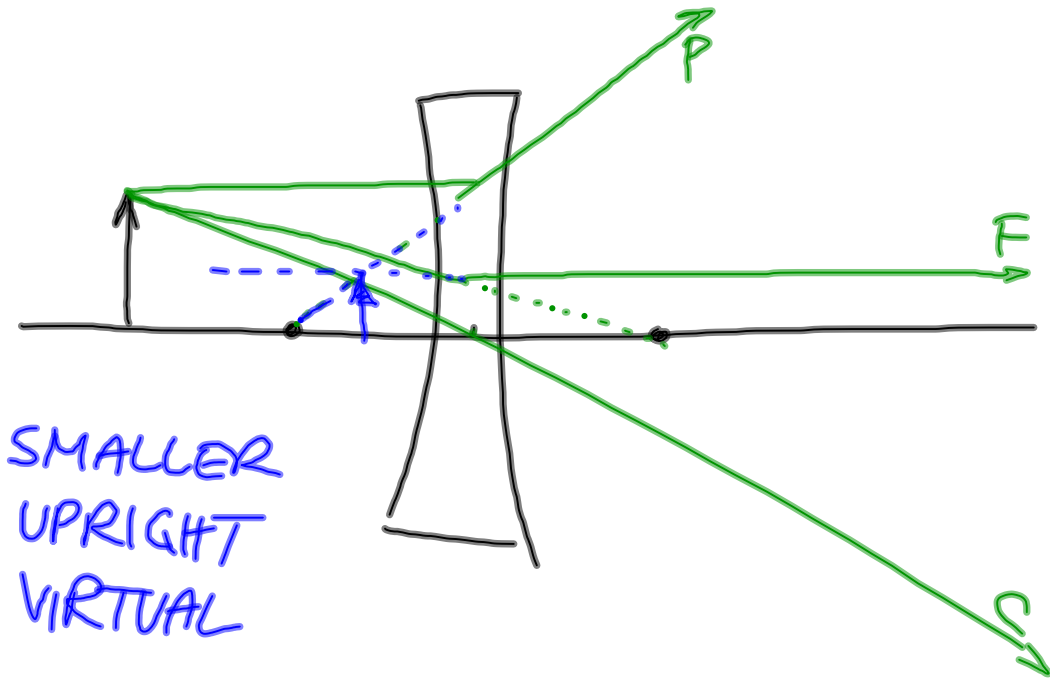
May 23-8:35 AM



May 23-8:44 AM



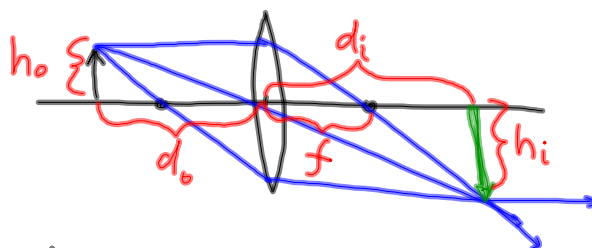
May 23-8:54 AM



May 23-9:00 AM

THIN LENS EQ'N

$$\frac{1}{d_i} + \frac{1}{d_o} = \frac{1}{f}$$



$$\begin{aligned} d_i &= 5.0 \text{ cm} \\ d_o &= 6.8 \\ f &= 3.0 \text{ cm} \end{aligned}$$

$$\begin{aligned} \frac{1}{5.0} + \frac{1}{6.8} &= \frac{1}{3.0} \\ 0.20 + 0.15 &= 0.33 \\ 0.35 &\approx 0.33 \end{aligned}$$

✓  
( < 10% DIFF )

May 23-9:12 AM

$$M = \frac{h_i}{h_o}$$

M: magnification

$$\frac{h_i}{h_o} = \frac{-d_i}{d_o}$$

$d_i$  is *positive* for real images and *negative* for virtual images

M is *positive* for upright images and *negative* for inverted images

f is *positive* for converging lenses and *negative* for diverging lenses

May 23-9:23 AM