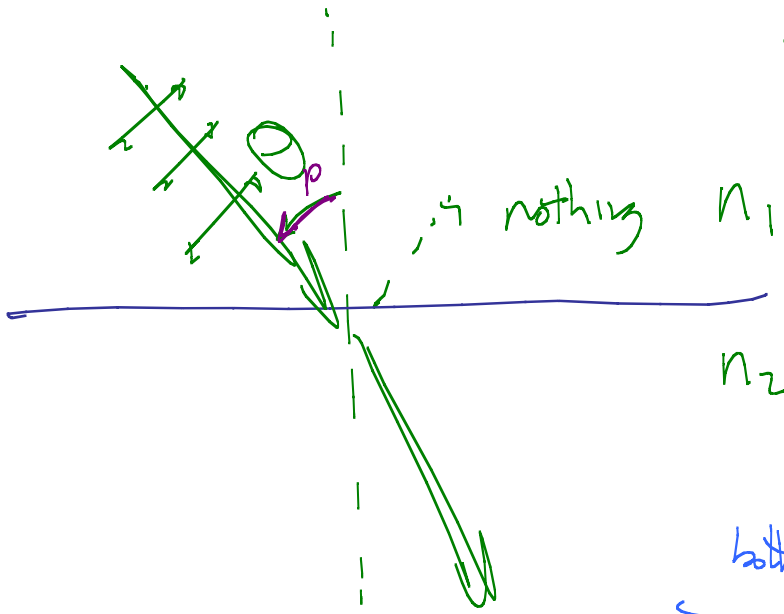
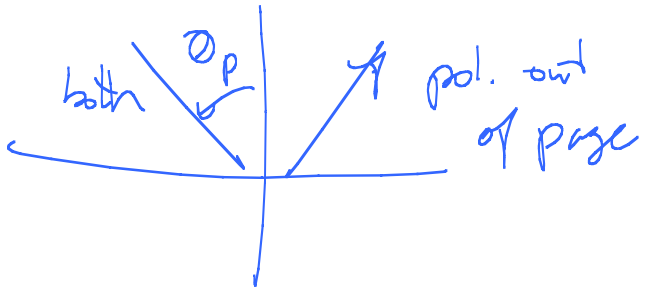
Phys 2120-4 11/14/12

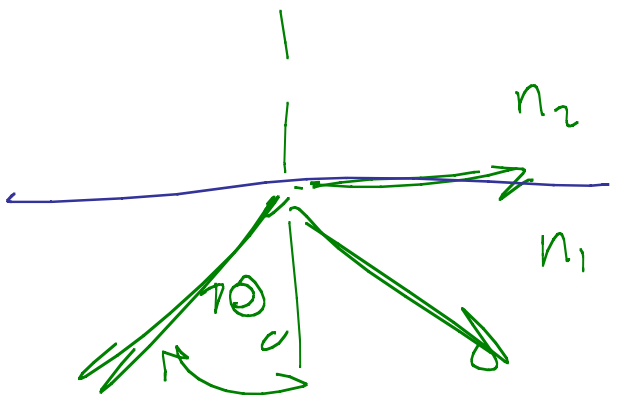
Note Title 11/14/2012



$$\tan\theta_p = \frac{n_2}{n_1}$$

Air - glass $\theta_p = 58^\circ$

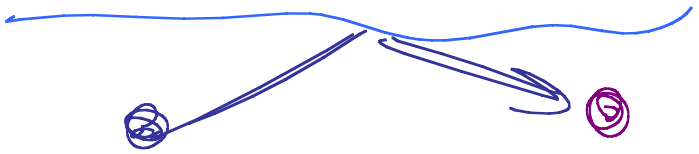




$$\sin\theta_c = \frac{n_2}{n_1}$$

Water → air

$$\sin\theta_c = \frac{1}{1.333} \qquad \theta_c = 48.6^\circ$$

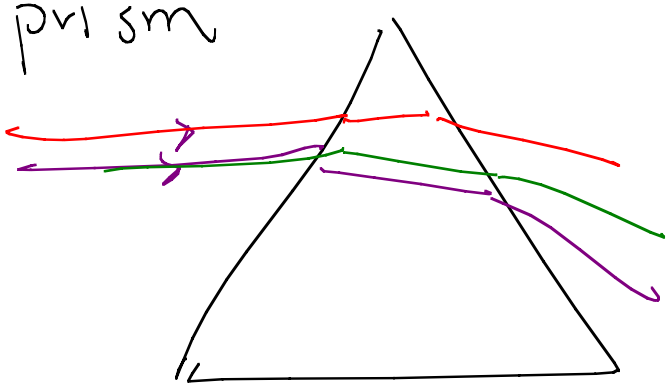


Dispersion.

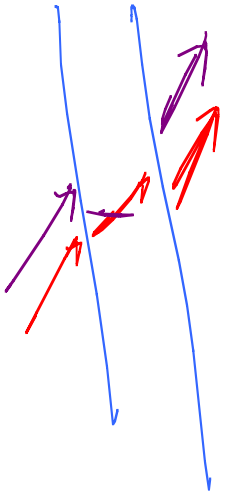
n gives speed of light $v = c/n$

n has small dependence on frequency.

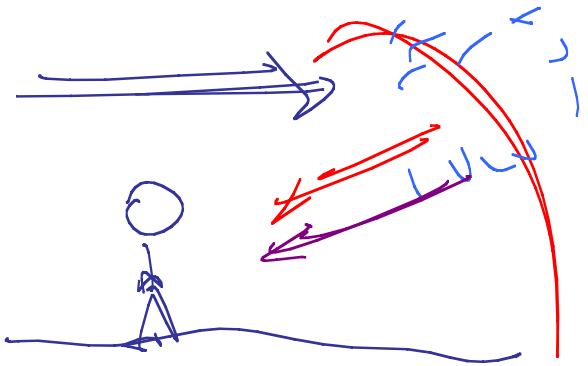
Seen with a prism

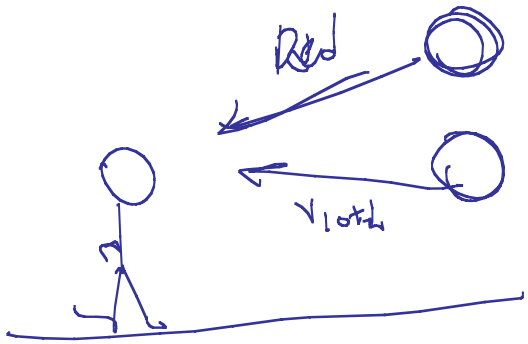


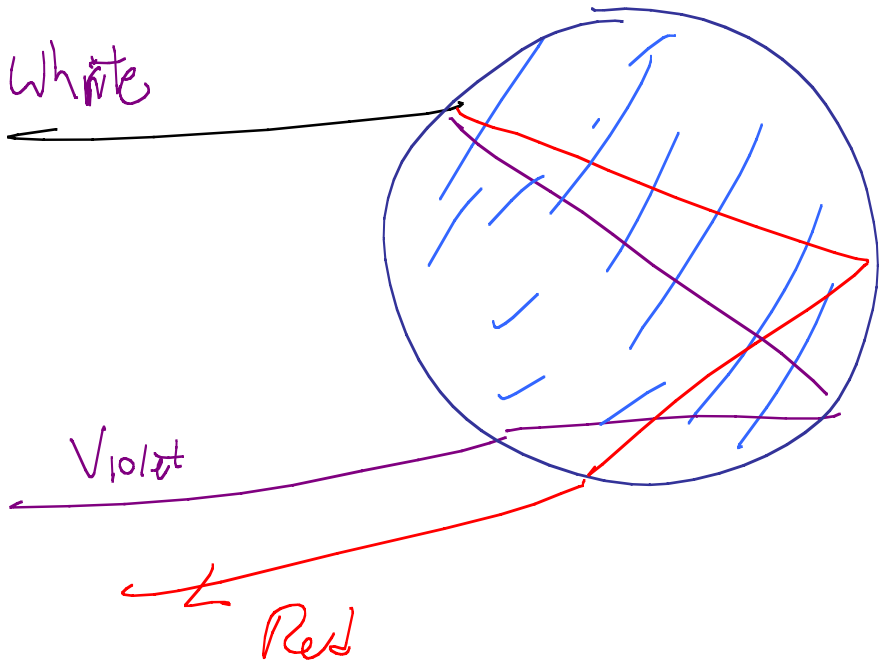
White light → comb of colors



Rainbow :







Can be explained.

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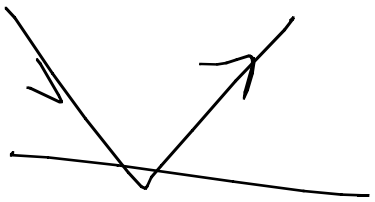
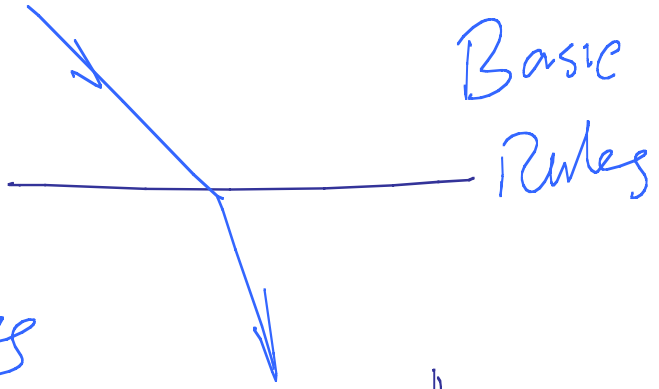




Basic Rules

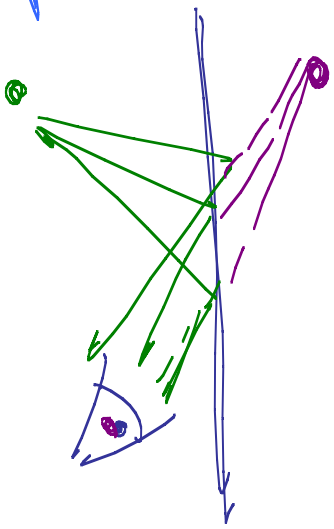
Understand common devices

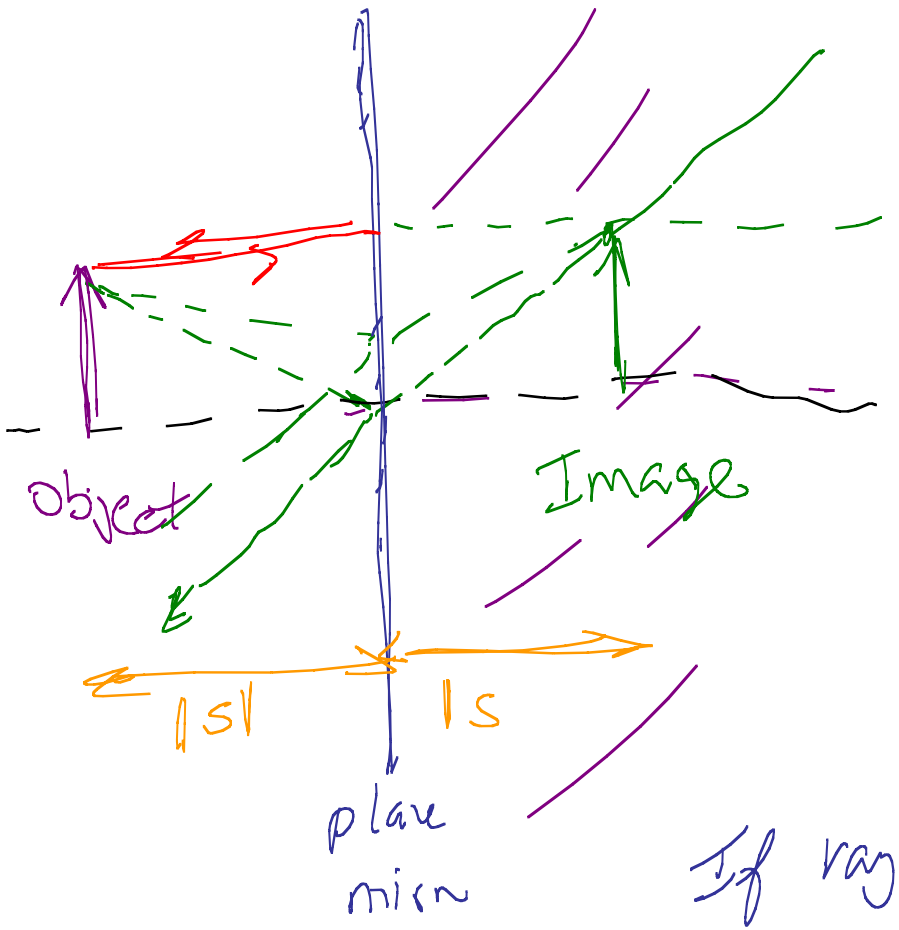
Mirrors lenses

Planar mirrors

Mentally trace rays back.

Imaginary source.





Select rays trace them out.

Light seems to come from Image

Locate Image

size.

You determine size dist of image.

If ray don't diverge from source point virtual image

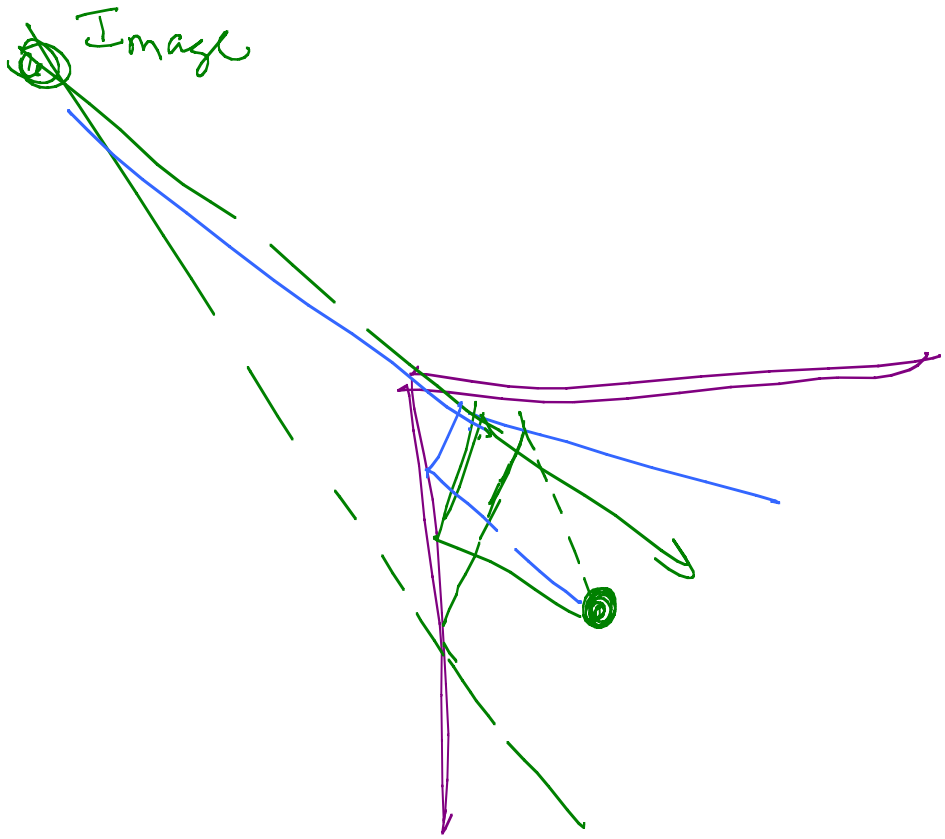
Another issue:

Often say "mirrors reverse L/R"!

Don't reverse back to front

Another trick

See yourself as others see you.



Full-length mirror

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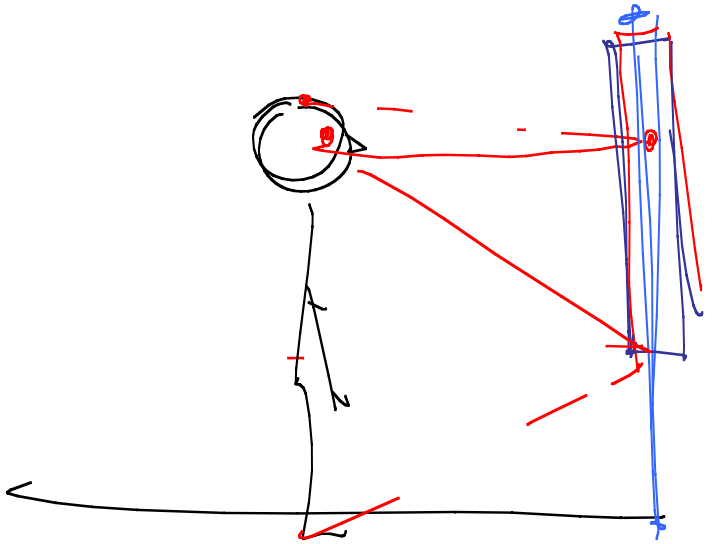
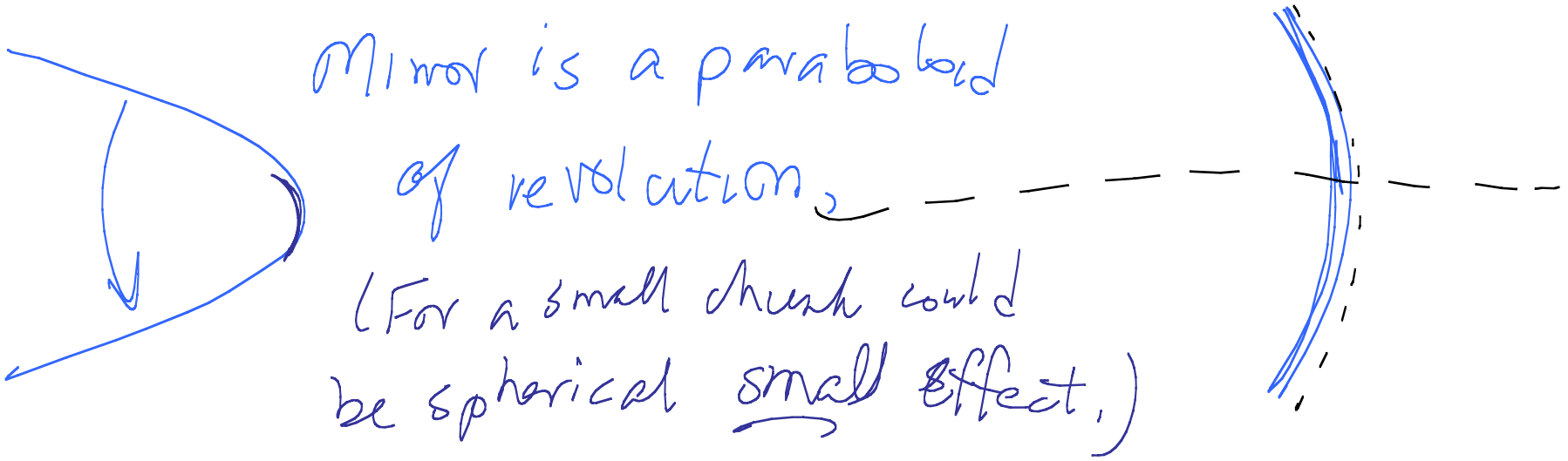
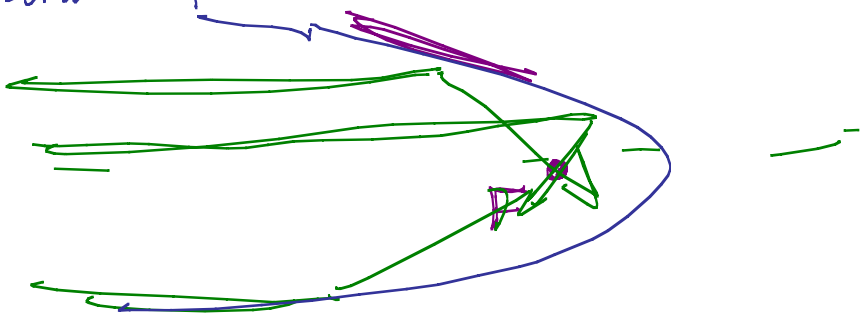
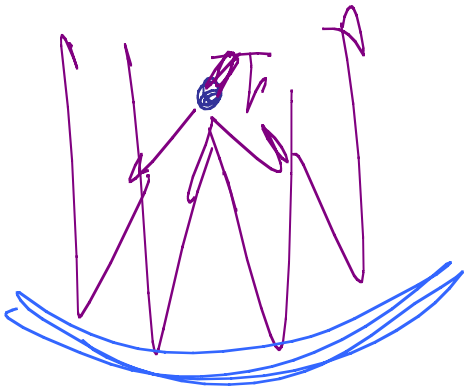
Curved Mirrors

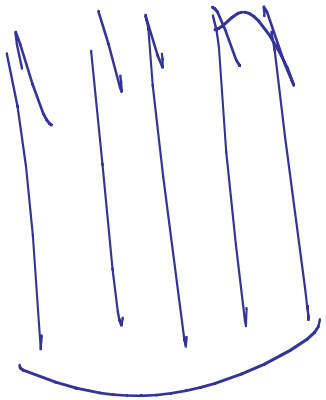


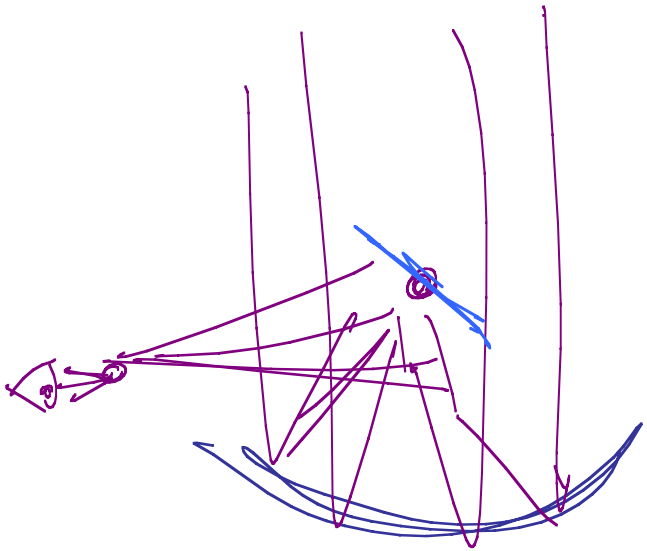


True parabola









So how does curved mirror form image.

Reflector

Rays will follow these rules: