Problem #1

Higher refractive index makes light to go slower in a medium.

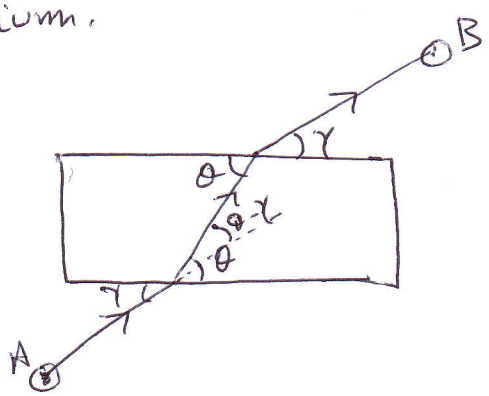

illustration is for a rectangular glass body

Light incident on a surface bends from γ to θ such that total time to travel from (A) to (B) is minimized for (θ-γ) as the extra bending. Any angle less than (θ-γ) would increase time taken in glass by increasing distance in glass. And any angle greater than (θ-γ) would increase time of travel outside the glass on the other side. Light from point A to B minimizes total time to travel from A to B.

Gravity can bend light, because it bends the space time continuum. Would increasing mass increase the refractive index or reduce it? Why? What if the material was completely transparent, such as diamond or glass?

Problem #2

Is it possible for one person in space to perceive a ray of light go straight whereas another person at a different point in space (or time) to perceive the same ~~light~~ light ray to be curved? Give a logical reasoning for why this should or should not be possible.

Assume Facts:

A mass pulls another mass

Gravity $\propto$ product of Two masses pulling each other

ray of light goes in straight line in space-time.

gravity curves space time.

Problem #3

Blank your mind.

Was the first Thought

a) how can I ?

b) Now what ?

c) It was good

d) Didn't work

e) I want to try again ☺

f) Why did it not work ?

Problem #4

True or false :

(i) $|x-2| \geq |2-x|$

(ii) $x^3 < -\frac{1}{x^3}$ for $-1 < x < 0$

(iii) $e^x > 2^x$ for -ve x

(iv) $e^x > 2^x$ for +ve but fractional x

(v) $\frac{1}{x} \geq \frac{1}{|x|}$ for all $x < -1/2$