be so much obliged. And I don't think it will give you much trouble – it is so exceedingly simple a matter. When I was young I went fair enough, I think, for solve a quadratic – now I am afraid of a simple equation: in fact, not having attended to such matters for 20 or 30 years! I have nearly forgot all about them. And my only doubt is this – I can very easily point out my puzzle – but I am not sure that I shall understand the explanation. If you are so very kind as to take this trouble for me, you will have to treat me as an excessively stupid boy, that wants every step made clear. —

What bothers me is the excessively simple optical formula

$$\frac{1}{v} + \frac{1}{u} = \frac{1}{f}.$$

How does this differ in its result from $v + u = f$?

Given f, and v, or u, how am I to find (numerically,) the unknown u or v?

Simple, excessively, as I know it is, I cannot make it out.

In a case I have set for myself I have $u = 4{\cdot}5 \quad f = 3$. Then to find v I have

$$\frac{1}{v} = \frac{1}{3} - \frac{1}{4{\cdot}5}.$$ and there I stick –

I have got value for what I think you call Reciprocal of v; and – – – – –

won't it do to turn all upside down & say $\frac{v}{1} = \frac{3}{1} - \frac{4{\cdot}5}{1}$ – and then it is $v = 3 - 4{\cdot}5 = -1{\cdot}5$

But I see, from common sense & a diagram that is wrong. But why? Of course my process is wrong. But where? —

There's an Algebraist for you (a FRAS!)

Now can I conceive (tho' it is less material to my purpose, & if you are pressed for time pray don't give it a thought) how

$\frac{r - v}{\frac{1}{2}r} = \frac{u - v}{u}$ is worked up (or down!) into my enemy $\frac{1}{v} + \frac{1}{u} = \frac{2}{r}$ (or $\frac{1}{f}$ as above.)