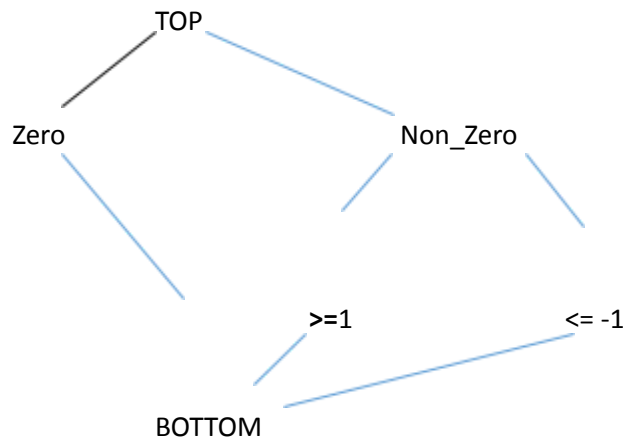


**Abstract Interpretation:**



+	TOP	zero	Non_Zero	>=1	<=-1	BOTTOM
Top	TOP	TOP	TOP	TOP	TOP	Bottom
zero	TOP	zero	Non_zero	>=1	<= -1	Bottom
Non_Zero	TOP	Non_zero	Top	Top	Top	Bottom
>=1	TOP	>=1	Top	>=1	Top	Bottom
<=-1	TOP	<= -1	Top	Top	<= -1	Bottom
BOTTOM	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom

*	TOP	zero	Non_Zero	>=1	<=-1	BOTTOM
Top	TOP	TOP	TOP	TOP	TOP	Bottom
zero	TOP	zero	zero	zero	zero	Bottom
Non_Zero	TOP	zero	Non_zero	Non_zero	Non_zero	Bottom
>=1	TOP	zero	Non_zero	>=1	<=-1	Bottom
<=-1	TOP	zero	Non_zero	<=-1	>= 1	Bottom
BOTTOM	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom

->Denominator /	TOP	zero	Non_Zero	>=1	<=-1	BOTTOM
Top	TOP	TOP	TOP	TOP	TOP	Bottom
zero	TOP	TOP	zero	zero	zero	Bottom
Non_Zero	TOP	TOP	TOP	TOP	TOP	Bottom
>=1	TOP	TOP	TOP	TOP	TOP	Bottom
<=-1	TOP	TOP	TOP	TOP	TOP	Bottom
BOTTOM	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom

The previous lattice is particularly better than a lattice with points **{Top, Zero, Non\_zero, Bottom}**.

As from the division table, it appears to me that, dividing by Top should be detected as error (though it is obvious that not all of this cases are actually an issue). So the latter lattice choice would result in more **TOP** value and the precision will be lower. But for the first lattice, many operations will be mapped to Non-zero instead of TOP and thus precision will be higher.

**Confusion about division table:** Most of the cell value is TOP and some of them will show undefined behavior and others will be valid calculation. I could not think of any other lattice point to differentiate between those cases.