1163-A1-617 **Hyman Bass*** (hybass@umich.edu), 3281 Wylie Rd., Dexter, MI 48130. *Group Theory on the Number Line.* Preliminary report.

I propose a way that (concrete) group theory can illuminate some basic ideas of school math, through studying additive and multiplicative groups of real numbers. The key is Division with Remainder: (DwR) For a and b $> 0$ in R, a $=$ qb $+$ r with q in Z (integers) and $0 \leq$ r $<$ b. Let A be a subset of R and a in A. Call a isolated in A if, for some r $> 0$, (a-r, a+r) contains no element $\neq$ a from A. Call A discrete if all of its elements are isolated, and uniformly discrete if some r $> 0$ works for all a in A. Call A an additive group if A is closed under $+$ and $-$. Let A be a real additive group. The following follow easily from (DwR). (I) If 0 is isolated in A then A is uniformly discrete. (II) A is either discrete or dense in R. (III) If A is discrete then A $=$ Za for a unique a $\geq 0$. (IV) Za $+$ Zb is discrete iff a and b are commensurable. In this case, d $=$ gcd(a, b) $\geq 0$ and m $=$ lcm(a, b) $\geq 0$ are defined by, Za $+$ Zb $=$ Zd and Za $\cap$ Zb $=$ Zm. Using the continuous group isomorphism exp: R —-> $(0, \infty)$, one can similarly describe discrete multiplicative subgroups of R. Studying the additive and multiplicative structures of C and of Z/Zm is more complex.. (Received September 10, 2020)