

Re: motivating a kid into analysis

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- *From:* quasi <quasi@xxxxxxxx>
 - *Date:* Wed, 05 Oct 2005 19:01:12 -0700
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On 5 Oct 2005 09:12:38 -0700, "Amanda" <sca18@xxxxxxxxxxxx> wrote:

>Hello

>

>I'd like some hints from the experienced mathematicians on how I can
>motivate my 14-year-old son into Analysis. I'm an engineer and like
>Math, especially Analysis, and whenever I can I try to study in on my
>own. My boy loves math, but he's into number theory. He loves those
>problems like proving an integer number is prime, for example. He likes
>to deal with things like congruences, Fermat's Little Theorem and
>groups (according to his age, of course).
>I tried to introduce him to Analysis, but I noticed he had some
>difficulty to understand the epsilon-delta definitions of limit and
>continuity. He also showed some difficulty with the concepts of infimum
>and supremum.

>

>I'm not sure, but I think people who specializes in Number Theory are
>not into Analysis that much and vice versa. I've noticed that
>mathematicians that post about Analysis usually don't post about number
>theory, and the converse seems to be true.

>

>Amanda

I recommend these topics:

- (1) inequalities -- algebraic methods
- (2) geometry -- convexity, geometric inequalities, geometric limits
- (3) sequences and series (arithmetic, geometric, limits of sequences, infinite series)
- (4) limits -- algebraic (no epsilon-delta)

Only after the victim is captured by the fascination of the limit concept, perhaps then try again with epsilon-delta. But I would still wait. My feeling is, first do sets, logic, proofs, so the student understands that there is a need for rigor to actually prove something and gets comfortable with logical statements -- especially statements

with quantifiers.

quasi

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• **References:**

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◇ *From: Amanda*

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