

Re: Set of irrationals closed under sum

Source: <http://sci.tech--archive.net/Archive/sci.math/2005-08/msg01990.html>

- *From:* magidin@xxxxxxxxxxxxxxxxxxx (Arturo Magidin)
 - *Date:* Thu, 11 Aug 2005 16:20:17 +0000 (UTC)
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In article <3m18mcF14hotnU1@xxxxxxxxxxxxxxxxxxx>, José Carlos Santos <jcsantos@xxxxxxxx> wrote:
>Hi all,
>
>Let x be an irrational number and let $A = \{x, 2x, 3x, \dots\}$. Then A is countable
>set of irrational
>numbers such that $A + A$ is a subset of A .
>
>My question is: is there an *uncountable* set A of irrational numbers such
>that $A + A$ is a
>subset of A ?

Sure. Let B be a Hamel basis for \mathbb{R} over \mathbb{Q} . Let S be any uncountable subset of B which does not include a rational number (there is at most one rational number in B), and let A be the \mathbb{Z} -span of S .

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"It's not denial. I'm just very selective about
what I accept as reality."
--- Calvin ("Calvin and Hobbes")
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- *Follow-Ups:*
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◇ *From:* José Carlos Santos
 - ◆ **Re: Set of irrationals closed under sum**
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◇ *From:* José Carlos Santos

Re: Set of irrationals closed under sum

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