

# Re: Transcendental Dimensions

---

*Source:* <http://sci.tech-archive.net/Archive/sci.math/2005-07/msg03377.html>

---

- *From:* "W. Dale Hall" <[mailtowd-hall@xxxxxxxxxxx](mailto:mailtowd-hall@xxxxxxxxxxx)>
  - *Date:* Thu, 21 Jul 2005 09:23:54 GMT
- 

gsax wrote:

Hi

While playing with fractals, I noticed that I am usually able to create an equation, such that the dimension of the fractal is a root of that equation...

I am therefore skeptical regarding any object having transcendental dimensions. I mean how would we go about proving that the dimension of an object is not the root of any integer polynomial...

maybe I am wrong, & if I am I would like to know some examples of objects with transcendental dimensions.

thanks  
Gsax

Try the standard Cantor "middle-thirds" set. Its Hausdorff dimension is  $\log(2)/\log(3)$ , which is transcendental, see this page:

<http://numbers.computation.free.fr/Constants/Miscellaneous/classification.html#Hardy>

(the two lines need to be reattached to make a real URL).

## Re: Transcendental Dimensions

The author ascribes the proof that  $\log(3)/\log(2)$  is transcendental to Hardy and Wright.

Dale.

.