

## Re: DWB: Trisecting an Angle

**Source:** <http://sci.tech-archive.net/Archive/sci.math/2004-10/3106.html>

---

**From:** shedar (*nobody\_at\_nonesuch.com*)

**Date:** 10/11/04

Date: Mon, 11 Oct 2004 06:28:51 GMT

"Ryan Reich" <ryanr@uchicago.edu> wrote in message  
news:2su6ldF1n0l6oU2@uni-berlin.de...

> *On Sunday 10 October 2004 19:37, David Bandel wrote:*

>

>> *For years, 'trisecting an angle' has been synonymous with "crank,"*  
>> *"crackpot," and any other variety of derogatory terms. The situation*  
>> *here is a problem mathematics has been face with since mathematicians*  
>> *have taken it upon themselves to judge others before judging their*  
>> *work.*

>>

>> *What follows is a perfectly accurate method of trisecting an angle*  
>> *using only a straightedge and a compass. Will it be viewed as correct? I*  
>> *suspect not. But not for any logical fallacy in itself. Merely because*  
>> *mathematicians are blinded by the jargon they've been shackled with by*  
>> *their colleagues and teachers.*

>>

>> *You are given an angle.*

>>

>> *Construct a circle around the vertex of the angle. The center of the*  
>> *circle is point A, and the points where the rays of the angle*  
>> *intersect the perimeter of the circle are B and C. Hence angle BAC*  
>> *becomes the angle of interest.*

>>

>> *Continue the line AC in the direction opposite of ray AC.*

>>

>> *Draw a line from point B such that it strikes the circle at one point*  
>> *E on it's way out and hits the ray CA at point D and such that line*  
>> *segment DE is equal to the radius of the circle.*

>

> *This sentence is where you depart from the straightedge-compass rules.*

> *There is no way to make this line BE without using a ruler, since it*  
relies

> *on two as-yet-unconstructed lengths being simultaneously constructed to be*  
> *equal. Archimedes had this construction, actually (it's discussed in*  
> *Dummit and Foote's *Abstract Algebra*, p. 515 in the second edition).*

>

>> *Angle EDA is x.*

sci.math: Re: DWB: Trisecting an Angle

> > *Triangle DAE is isosceles, therefore angle DAE is  $x$  and angle AED is*  
> >  *$180 - 2x$ .*  
> > *Triangle BEA is therefore  $2x$ . It is also isosceles so EBA is  $2x$  and*  
> > *EAB is  $180 - 4x$ .*  
> > *This leave angle BAC as  $3x$ .*  
> >  
> > *BAC is the angle we started with. Angle EDA is one third of it's*  
> > *angular measure.*  
> >  
> > *The angle is trisected.*  
> >  
> > *The proof is fairly rigorous as far as construction-based proofs are*  
> > *concerned.*  
>  
> *It is, in fact, totally rigorous...but it uses an axiom that isn't one of*  
> *the straightedge-and-compass rules, so it does not "trisect the angle" in*  
> *the Greek sense.*  
>  
> > *Are we dealing with a paradox? Is it a contradiction when a seemingly*  
> > *impossible problem is solved? I'm afraid that many posters here seem*  
> > *to think so. Mathematics as it exists today is shrouded in hypocrisy*  
> > *and bigotry against the young and new. Those with fresh ideas are*  
> > *shunned from the mathematical community like sooth sayers with the*  
> > *plague. When difficult problems are solved, mathematics marches*  
> > *forwards regardless of the reactions of the few fools who try to hold*  
> > *it back.*  
>  
> *Spare the bitterness, please. It's okay to be wrong, less so to be*  
*grouchy.*  
>  
> --  
> *Ryan Reich*  
> *ryanr@uchicago.edu*

You have the patience of a saint, Ryan. Look at the number of ridiculous rants he's swamped this NG with.

It is okay for a student to be wrong if the student is willing to learn from his mistakes. But a distinctive trademark of a "crackpot" is to PURPOSELY muddle the precise constraints of what is and is not a "legal" construction so that he might be able to confuse and lull the laymen into incorrectly thinking that he is smarter than Archimedes or Apollonius—not to even mention the fact that the technique he described has already been reported by Archimedes over two millennia ago (but unlike the "crackpots", Archimedes understood perfectly the "illegality" of the construction according to the constraints of classical Greek geometry).

I can only imagine the precocious and prodigal Apollonius—who, on more than one occasion, was highly critical of some of Archimedes' ingenuity—laughing himself to death upon seeing the "illegal" construction, or laughing with the rest of the geometry "court" as they kick the "crackpot" out of their

place of gathering.

Shedar