

## Re: How to measure an angle?

---

*Source:* <http://sci.tech-archive.net/Archive/sci.math/2005-08/msg01508.html>

---

- *From:* [matt271829-news@xxxxxxxxxxxxx](mailto:matt271829-news@xxxxxxxxxxxxx)
  - *Date:* 8 Aug 2005 12:30:04 -0700
- 

Randy Poe wrote:

> Albert wrote:

>> Hello,

>>

>> sorry for dubious question, but could someone advise how to measure in  
>> degrees an angle ABC with numeric methods (i.e. without trigonometric  
>> tables) when one knows the coordinates of points A, B and C? I know  
>> that one can measure any trigonometric function of the angle and after  
>> that to look up the corresponding value in degrees in the trigonometric  
>> table. But is there a way to measure an angle without trigonometric  
>> tables?

>

> By dot product.

>

> Let  $u_{BA}$  = unit vector from B to A =  $(A-B)/|A-B|$

>

> (vector difference A-B, divided by magnitude of the  
> vector B-A)

>

> Let  $u_{BC}$  = unit vector from B to C =  $(B-C)/|B-C|$

>

> Then  $\cos(ABC) = u_{BA} \cdot u_{BC}$

>

> ABC is the arccosine of the dot product, which you can find  
> with a computer or calculator.

Or trig tables perhaps?

>

> To take the dot product of two vectors, multiply corresponding  
> components and add:

>

>  $(x_1, y_1) \cdot (x_2, y_2) = x_1 \cdot x_2 + y_1 \cdot y_2$

>

> - Randy

.

- *Follow-Ups:*
  - ◆ *Re: How to measure an angle?*
    - ◇ *From:* Randy Poe
  
- *References:*
  - ◆ *How to measure an angle?*
    - ◇ *From:* Albert
  - ◆ *Re: How to measure an angle?*
    - ◇ *From:* Randy Poe
  
- Prev by Date: *Re: infinity*
- Next by Date: *Re: infinity*
- Previous by thread: *Re: How to measure an angle?*
- Next by thread: *Re: How to measure an angle?*
- Index(es):
  - ◆ *Date*
  - ◆ *Thread*