

# Re: Geometric Naming

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  - *Date:* Thu, 23 Mar 2006 19:29:51 +0000 (UTC)
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"[Mr.] Lynn Kurtz" <kurtzDELETE-THIS@xxxxxxx> writes in article <HPEiRIIZI+=0ITcOWp4q1wId2ob@xxxxxxx> dated Thu, 23 Mar 2006 19:11:38 GMT:

On 23 Mar 2006 10:17:17 -0800, liquidfatality@xxxxxxx wrote:

Hi, I recently took a test in my geometry class in school. One of the questions was this:

Given isosceles triangle ABC, such that  $AB=AC$ . Draw point D on segment AC such that,  $BD=AD=BC$ . Find the measure of angle A.

After seeing the solution given, angle  $A=36$ . However, my argument is that I could place point D on segment AC such that D and C are coinciding. The given restrictions would be met, and I would get the answer of 60 for angle A.

Is there any rule that says a point cannot be named with two different variables? Or any other fact that would prove my reasoning wrong?

I'm guessing the problem is worded somewhat differently, since it isn't always possible to find such a point D. Maybe something like:

You are given an isosceles triangle ABC such that  $AB = AC$ . Given that it is possible to draw point D on segment AC such that  $BD=AD=BC$ , find the measure of angle A.

Personally I would give you partial credit for finding one possible answer. But the full answer would be  $A = 36$  or 60 degrees. So if your teacher gives you partial credit, she shouldn't give full credit for the answer  $A = 36$ . Or she could just decide to give both answers full credit just because.

The answer  $A = 36$  depends on a set of equations which includes angle BCD, which is undefined if  $C=D$ . Since the problem does not rule out this case, only the set of both answers is worth full credit, IMHO.  $A = 60$  and  $A = 36$  should each be worth half credit.

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This problem could have been avoided if the triangle were given to be isosceles but not equilateral.

—Keith Lewis klewis {at} mitre.org

The above may not (yet) represent the opinions of my employer.

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