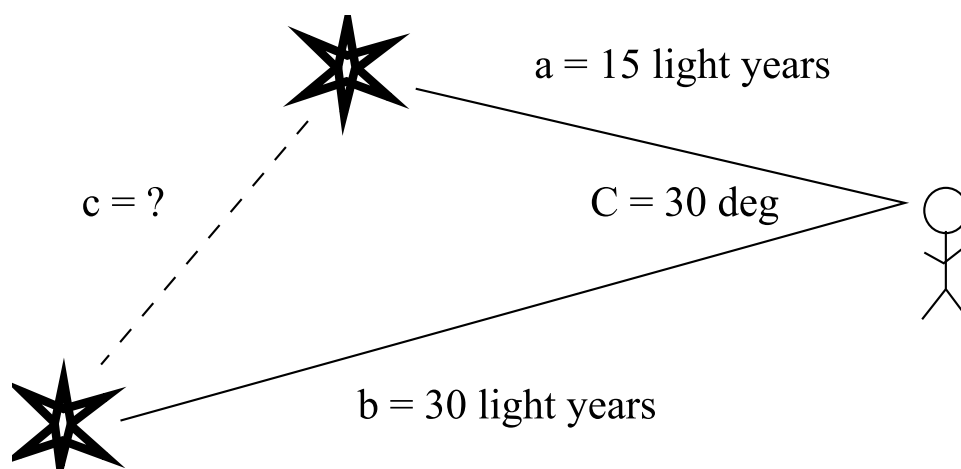


How Far Apart Are Two Stars?

February 25, 2010

There are two stars in the sky, one of which is 15 light years away and the other star is 30 light years away. When looking at the two stars, the angle between the lines of sight is 30° . The picture is:



We would like to find the distance c between the two stars.

1. Solve this problem by using the Law of Cosines, which says:

$$\begin{aligned}a^2 &= b^2 + c^2 - 2bc \cos A \\b^2 &= a^2 + c^2 - 2ac \cos B \\c^2 &= a^2 + b^2 - 2ab \cos C.\end{aligned}$$

You only need to use one of these equations. Which looks the most useful? Why?

2. What happens if you try to use the Law of Sines to solve this problem?