How To Eestimate the Magnitude of a Star.

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Let's start by estimating the magnitude of γ Ursae Minoris. Look towards the North and find the constellation of The Little Bear, (Ursa Minor). It is conveniently on display at all times of the year in the northern hemisphere. This constellation provides a good range of star magnitudes for excellent practice in estimating star brightness using the naked eye.

The seven main stars of the constellation are marked in the map. We will try and estimate the magnitude of γ Ursae Minoris (arrowed) using just your naked eye.

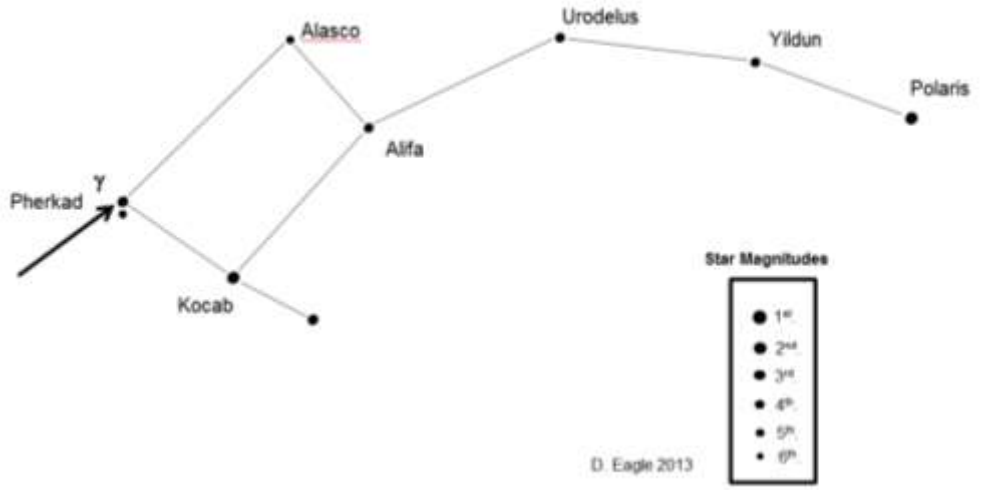

Figure 1 – Location of Gamma Ursae Majoris.

Look carefully at the stars surrounding γ. You need to identify two that are fairly close to the star you are trying to estimate. These will be our comparison stars.

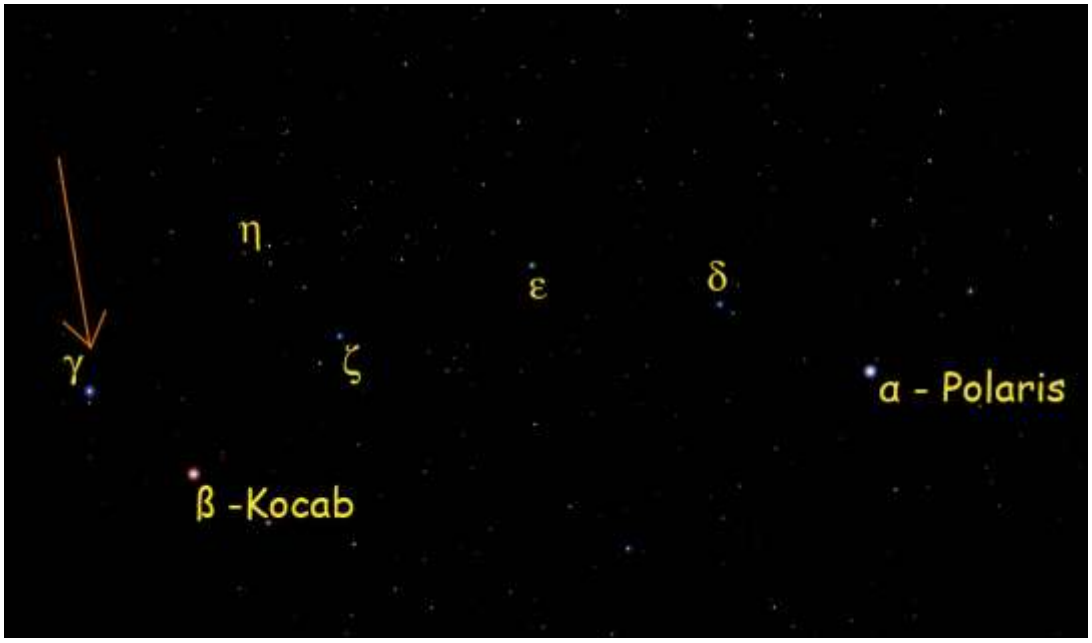

Figure 2 – Image of Gamma Ursae Majoris with its position indicated.

In this particular case, two of the stars, Kocab (β)and Alifa (ζ) conveniently lie either side of γ in magnitude.

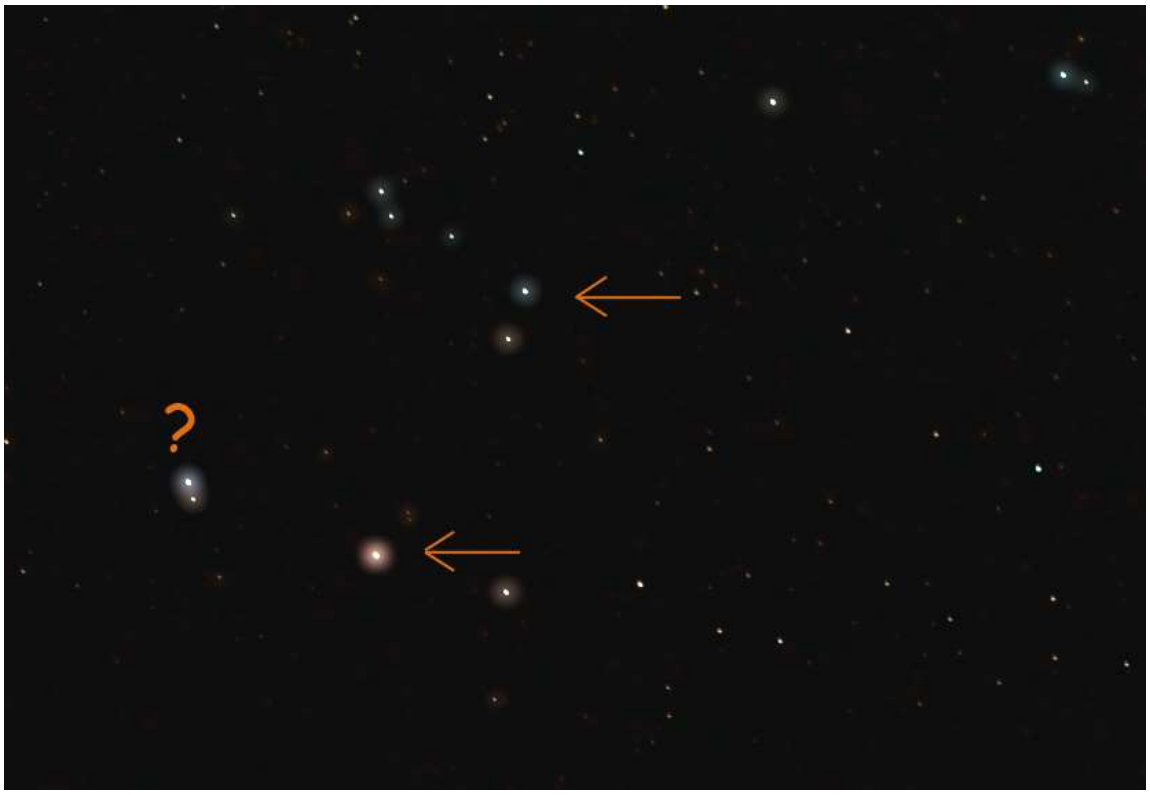

Figure 3 – Identifying the comparison stars Beta and Zeta.

Observe the three stars carefully and estimate how far from each star γ varies. Is it just fainter than the brightest comparison star, just brighter than the fainter star, or somewhere in between? Try and determine where that star lies in brightness on a scale of 1 - 10 between the two stars.

Have you got a measurement yourself?

In this instance you should be able to see that the brightness of this star is almost exactly midway between our two comparison stars, so we assign a score of 5 on our scale,

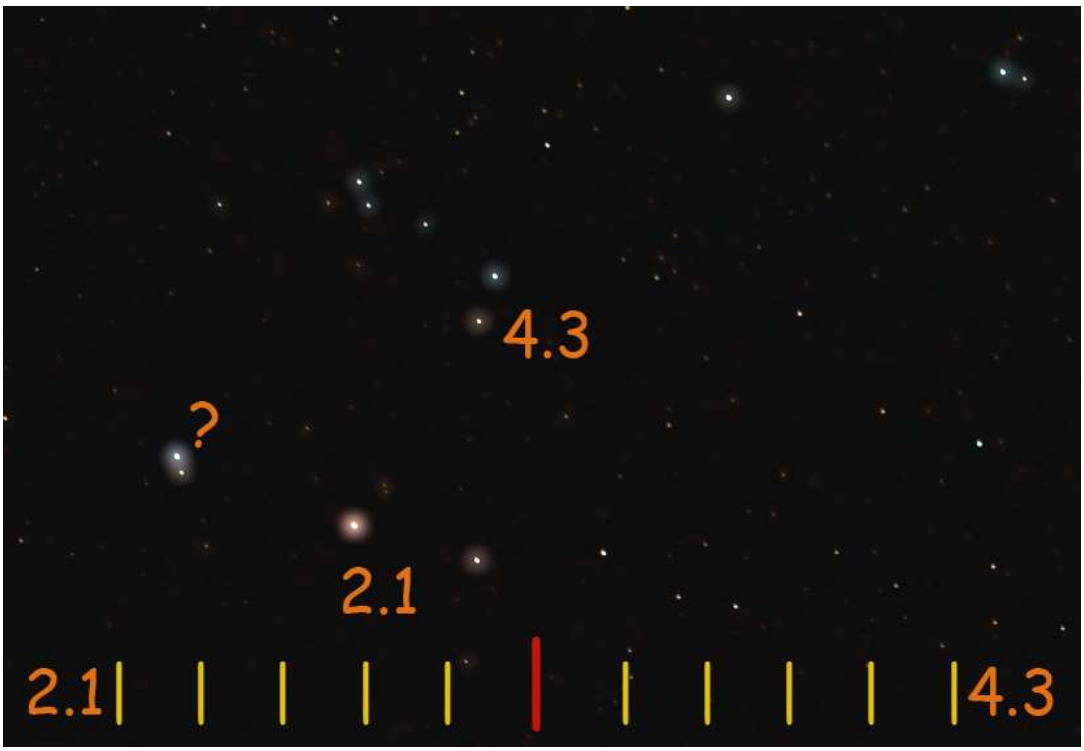

Figure 4 – Estimate on a scale of 10 how far between each comparison star your star of interest lies.

The magnitudes of the two comparison stars we have just compared it to are given as 2.1 and 4.3.

If our estimated star is roughly midway between these two stars it gives us an estimated magnitude for γ of around 3.0.

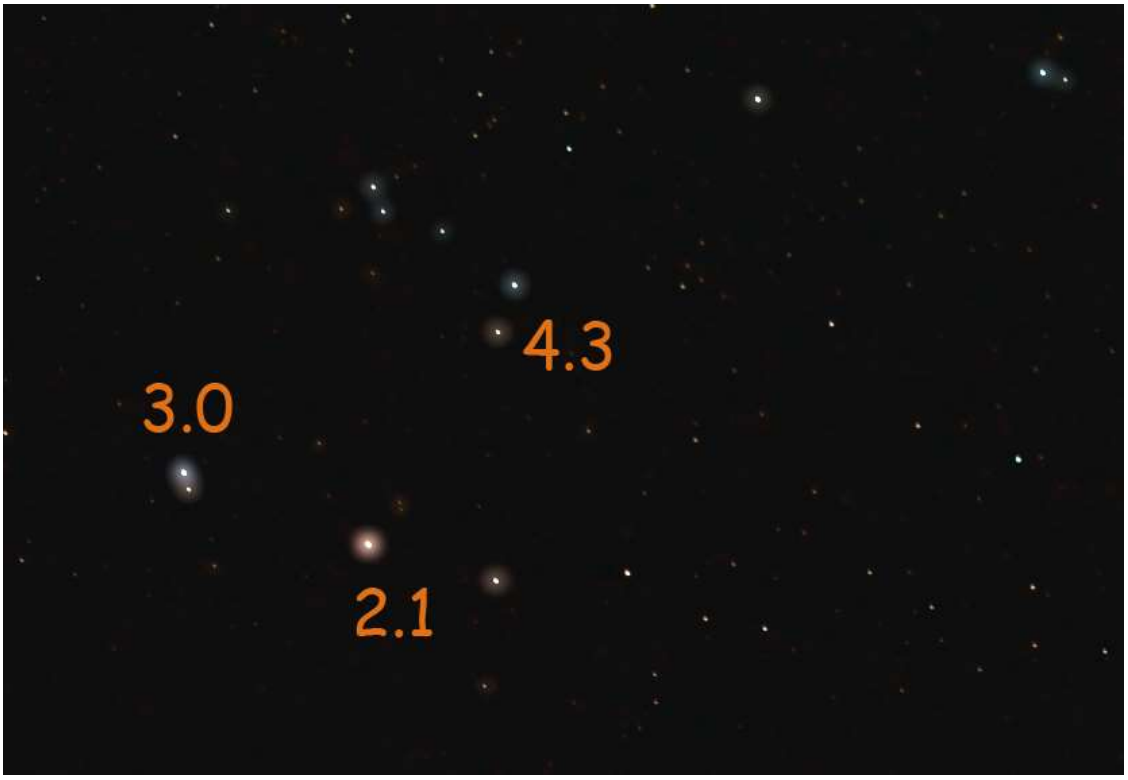

Figure 5 – Our estimate of Gamma's Magnitude.

γ's magnitude is in fact 3.05 which is extremely close to our approximation.

Carefully observing stars in this way will enable you to calculate magnitudes of other objects seen in the sky.

This skill will also come in very useful when estimating the brightness meteors, minor planets and comets.

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