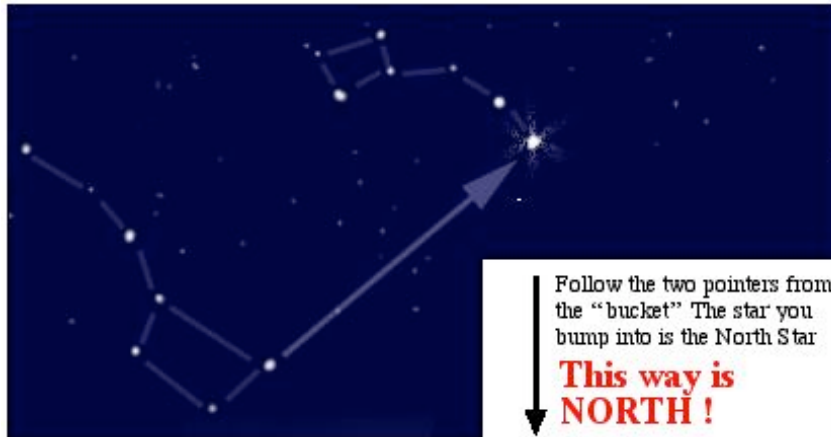


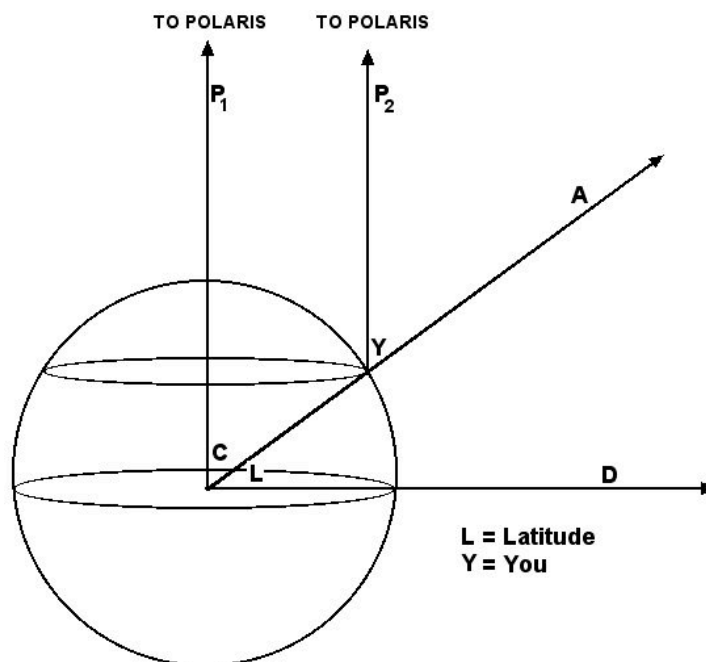
## How to Find Your Latitude in the Northern Hemisphere

If you look up in the sky you can see the big dipper and the two end stars of the bucket, point to the star called Polaris, the North Star. Below is an image of that:



Once you have found the North Star (Polaris), then try to find the angle between it and directly above your head. One way of doing this is to ask “how many fist-widths are there” between Polaris and directly above. Stand in a corner of a room and hold your arm out and count how many fist-widths does it take to go from one wall to the other. With me it was about 11.5, so dividing  $90^\circ$  by 11.5 I get a “fist-width” of 7.83, or about  $8^\circ$ .

Now that you have a rough idea of the angle, then subtract it from  $90^\circ$  and you get your latitude. Below is a diagram that explains why you do that.



You are standing at point “Y” and directly over head is ray YA. Your latitude is defined as the  $\angle L$  from you, to the centre of the earth, to the equator. The  $\angle P_2YA$  is the angle from Polaris, the North Star to directly overhead. Since Polaris is so far away, the lines  $CP_1$  and  $YP_2$  are considered parallel. Hence  $\angle P_2YA$  is equal to  $\angle P_1CY$ , since they are corresponding angles. Now since  $\angle P_1CD$  is a right angle and therefore equal to  $90^\circ$ , I subtract  $\angle P_1CY$  from  $90^\circ$  to get  $\angle L$ . Therefore subtracting  $\angle P_2YA$  from  $90^\circ$  will give me my latitude.