01-Star Atlas Project - Mapping the Heavens

Procedure

Table 1 lists a number of desired parameters for stars. The first column is for the common name, the second is for the Bayer-Flamsteed name, the third column is for right ascension, the fourth column is for declination, the fifth column for apparent visual magnitude, and the last column for the map number wherein each star is found. Note that for some stars only the Bayer-Flamsteed name is listed, while for others only the right ascension and declination.

Your mission is to supply all the other parameters from either of these two clues. Proceed as follows for each star assigned:

Starting from the Bayer-Flamsteed name:

1) Find the map number that contains the star's constellation in The Trained Eye Star Atlas.
2) Search the constellation for the Greek letter or number of the Bayer-Flamsteed name.
3) Note the common name if any.
4) Figure out the apparent visual magnitude from the star's symbol.
5) Interpolate right ascension and declination from the map grid.

Starting from Right Ascension and Declination:

1) Leaf through the atlas for the map that includes the right ascension.
2) Go left to its hour of right ascension line.
3) Go down the hour of right ascension line to the declination degrees and arc-minutes.
4) Go left to the minutes of right ascension and you're there.
5) Note the Bayer-Flamsteed name.
6) Note the common name, if any.
7) Figure out the apparent visual magnitude from the star's symbol.

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Table 1: Bright Stars

	Common Name	Bayer-Flamsteed Name	RA H	RA M	DEC °	DEC ‘	Apparent Visual Magnitude	MAP #
1		α And						
2			1	38	-57	14		
3		α UMi						
4			2	08	23	32		
5		α Tau						
6			5	14	-8	12		
7		α Aur						
8			5	26	6	21		
9		β Tau						
10			5	55	7	24		
11		α Car						
12			6	45	-16	42		
13		ε CMa						
14			7	40	5	14		
15		β Gem						
16			10	09	11	59		
17		α Cru						
18			12	47	-59	41		
19		ζ UMa						
20			13	26	-11	10		
21		β Cen						
22			14	15	19	12		
23		α Cen						
24			16	29	-26	26		
25		λ Sco						
26			18	37	38	47		
27		α Aql						
28			20	42	45	17		
29		α PsA						

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Questions

1) Using the data in Table 2, *Add up the number of -1 and -0.5 magnitude stars and record in Table 3 and so on...*

Table 3: Numbers of Stars in Magnitude Ranges

Magnitude Range	Number of stars in range
-2 and -1.5	
-1 and -0.5	
0 and 0.5	
1 and 1.5	
2 and 2.5	
3 and 3.5	
4 and 4.5	
5 and fainter	

2) Using Table 3, At what magnitude are there the most stars (where does the number of stars peak in Table 3)?

3) Turn to Map 4 and a*dd up the number of -1 and -0.5 magnitude stars in the constellations of Canis Major & Canis Minor and record in Table 3 and so on...*

Table 4: Numbers of Stars in Magnitude Ranges

Magnitude Range	Number of stars in range
-2 and -1.5	
-1 and -0.5	
0 and 0.5	
1 and 1.5	
2 and 2.5	
3 and 3.5	
4 and 4.5	
5 and fainter	

4) Using Table 4, At what magnitude are there the most stars (where does the number of stars peak in Table 4)?

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5) Do your answers to questions 2 & 4 agree? _____

6) If not, why not? Which do you think is the correct answer?

7) What is the distance between Vega and Deneb, Deneb and Altair and Altair and Vega in degrees?

Hint: Use the "Curly Test". Place your pointer finger on one star and middle finger on another star. Lift your hand without moving your fingers and place your pointer finger at zero degrees on the Declination scale and where you touch your middle finger to the Declination scale is how far apart the stars are in degrees.

	Distance Between (Degrees)
Vega and Deneb	
Deneb and Altair	
Altair and Vega	