1. Shown below is a rough sketch of the North Star and the Big Dipper as they will appear at 9:00 tonight (from Utah). On the same diagram, using a ruler and protractor to be as accurate as you can, draw these stars as they would appear six hours later, at 3:00 a.m.

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North Star
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horizon
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2. Explain clearly how the sketch in the previous problem would be different, if the same stars were viewed, at the same time, from Mexico (latitude 20°). What if they were viewed from northern Canada (latitude 60°)?

3. The illustration below shows a few stars near the western horizon, as viewed from Utah. Draw arrows to show the directions that these stars will appear to move during the next half hour.

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horizon
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southwest  west  northwest
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4. How would the arrows you drew in the previous question differ, if instead we were viewing these same stars from the equator?

5. Sketch the motion of stars in the southern sky, as viewed from Utah.

6. Sketch the motion of stars in the southern sky, as viewed from South Africa (considerably south of the equator).

7. As seen from Utah on a certain night in August, the star Antares sets at 11:48 p.m. At what time will Antares set on the following night? (Explain your reasoning.)