

Polaris Project



North Star

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End of Unit 5 Assignment

This assignment consists of four parts. The first is a review with a couple of practice questions linked directly to their answers. The second is a short quiz that you take using WebCT. It will be instantly scored for you by WebCT; you only get once chance to take it, however, so be sure you are ready! The third part is an essay question. The question appears below; when you are ready to answer it, log on to WebCT and submit your essay. Finally, for each unit, you should log on to WebCT and contribute a question, an answer, or a comment to one of the posted topics. If you would like to introduce a new topic instead of contributing to an existing thread, please send your topic idea to your instructor. If you find the material in this unit challenging, you might want to start with the "discussion" part of the assignment in order to get some help with some of the ideas.

Brief summary of Unit Five:

In this unit we have gone through some of the astronomical factors that influence the seasons where you live, emphasizing mainly the effect of the sun's declination at different latitudes. We have then also gone on to discuss some of the other factors that influence your climate - most importantly, heat storage in water and soil, and transport of heat by water and air currents.

Before you go to the quiz, see how you do on these two questions. If you have trouble, you might want to review the unit, send a question to the discussion group, or seek help from the instructor.

Practice Question One

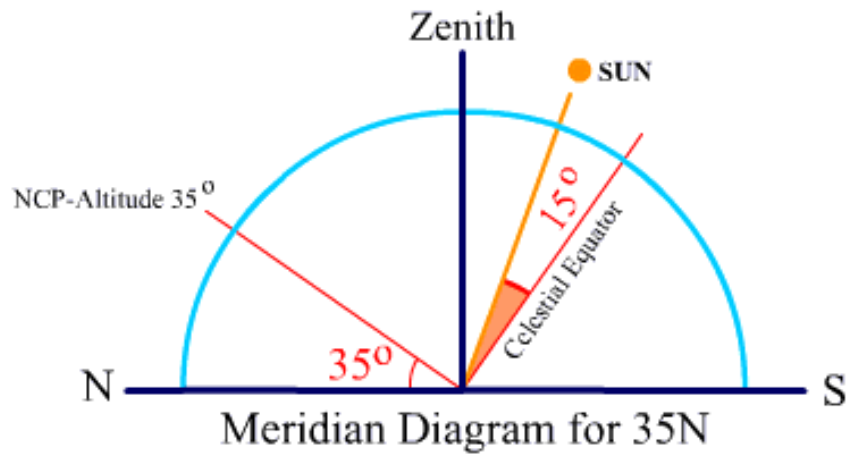
On which of the following dates and viewed from which of the following locations will the sun rise due east? Rise farthest north along the horizon? Rise farthest south along the horizon? Never rise at all? Never set?

Dates: March 21 (or, the vernal equinox); June 21 (or, the summer solstice); September 21 (or, the autumnal equinox); December 21 (the winter solstice).

Locations: Latitude 70S, 50S, 20S, 0, 30N, 60N, 80N.

Practice Question Two

Here is a meridian diagram. What is the observer's latitude? Is the declination of the sun on this date positive or negative? What is the altitude of the sun on the meridian at this latitude if its declination is 15?



Practice Question Three

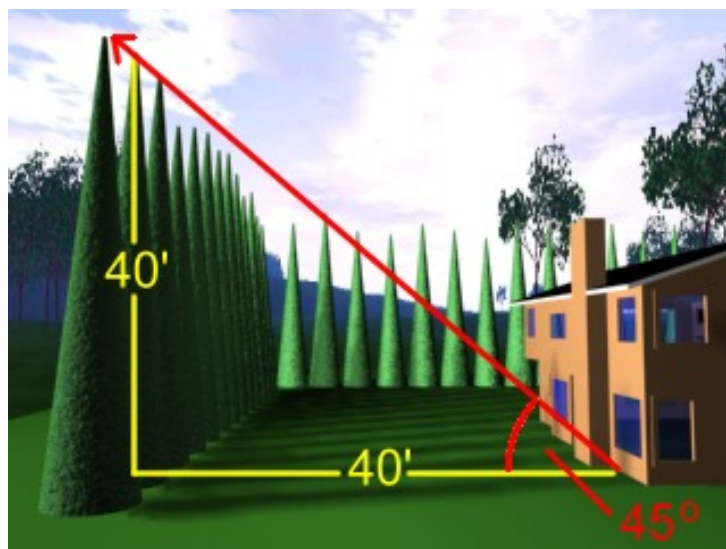
In which of these locations might you expect to see a vertical post cast no shadow at noon on a sunny day? Honolulu, Winnipeg, Paris, Rome, Cape Town?

When you are ready, [WebCT](#) and take Quiz Five.

You will get instant feedback on your score on Quiz Five (and your instructor will also be informed of your score). If your score is OK, you may proceed directly to the Essay Question Five on WebCT. Otherwise, you might want to look at what you missed, ask your instructor about questions you missed, or review relevant parts of the unit.

Essay Question

You have a yard with 40' trees located 40' from your house. Your latitude is 45 degrees N. How much of the year will your garden be shaded all the way to the house even at noon? Explain your logic! Here is a picture to illustrate this situation:



Hint: What does the red arrow point to?

When you are ready to answer this question, go to [WebCT](#) to write your answer.

Alternative to the Essay Question

Apply the same logic as is presented in the essay question to a real situation - for example, when one building on campus will shade another, or whether a tree will shade your house at noon. After applying that logic, check your answer by direct observation. You may submit your answer via Classnet in place of the essay, or email us the answer.

Don't forget to contribute to the discussion on [WebCT](#) on one of the topics in this unit!



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