

Answers to Tutorial Pages 87-89: Path of the Sun

1. South
2. Increases
3. No. The Sun never shines overhead north of the Tropic of Cancer, at latitude 23.5° N. The latitude of Key West in Florida is $24^\circ 33'$ N.
4. a) Spring and summer. One day after the spring equinox until one day before the fall equinox.
b) Fall and winter. One day after the fall equinox until one day before the spring equinox.
c) Spring equinox and fall equinox.
5. No. The Sun sets directly in the west on the spring equinox and the fall equinox. It sets north of east in the spring and summer. It sets south of east in the fall and winter.
6. The tip of the shadow.
7. Two hours
8. 12 hours
9. The shadow extends in the direction opposite the Sun. For example, if the Sun shines from the east, the shadow will extend to the west, and vice versa.
10. Northwest
11. Circle the two x's on the dotted north-south line.
12. Shadow of plot B. The higher the Sun, the shorter
13. Shadow plot A - winter - Sun lower in the sky casts a longer shadow
Shadow plot B - summer - Sun higher in the sky casts a shorter shadow
14. In the summer the Sun rises north of east, so the Sun should be drawn on the top right section of the figure. The x that should be labeled is the one on the bottom left of the figure.

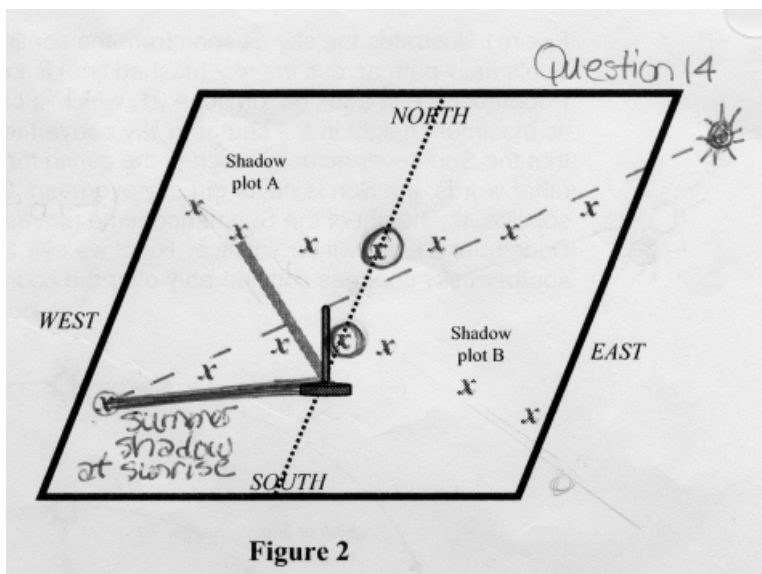


Figure 2

15. Winter, because the shadow direction is NW
16. No, the Sun at noon is lowest in the sky during the winter solstice, so on this day the shadow is longest.
17. No, the Sun at noon is highest in the sky on the summer solstice, so on this day the shadow is shortest.
18. For the second half of January, the x should be placed just below the uppermost x (along the NS line), because the Sun is starting to get higher in the sky as winter progresses.
19. No, because the Sun never shines from the north at noon in the continental U.S.
20. No.

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