

(1) Averaged over a whole year, how does *insolation* at the earth's surface depend on latitude?

(A) Insolation *decreases* with increasing latitude.

(B) Insolation *increases* with increasing latitude.

(C) Averaged over a full year, insolation is the *same at all latitudes*.

(2) Why does the number of hours of daylight vary with time of year*?

- (A) Because the temperature varies with time of year.
- (B) Because the distance between the earth and sun varies, thanks to the earth's elliptical orbit.
- (C) Because the amount of each latitude circle lit by the sun varies, thanks to the way that the axis of rotation tilts.
- (D) Because of the seasons.

*(except at the equator)

(3) Over the course of a day, the sun angle at any particular place varies. Why?

(Note: Although all responses below are true statements, only one of them is an actual explanation for the observation!)

- (A) Over the course of a day, the sun is higher in the sky at some times than it is at others.
- (B) Over the course of a day, the sun's rays strike the earth at different angles.
- (C) As the earth rotates, the surface at any particular place changes orientation relative to the sun.

(1) Which of the items below is ***not*** a possible explanation for why insolation at a particular place on the earth's surface might vary with time?

- (A) The output of the sun varies.
- (B) The distance between the earth and sun varies.
- (C) The sun angle varies (so the distance that solar radiation travels through the atmosphere varies).
- (D) The sun angle varies (so the degree of “spreading out” on the earth's surface varies).
- (E) The albedo of the surface varies.