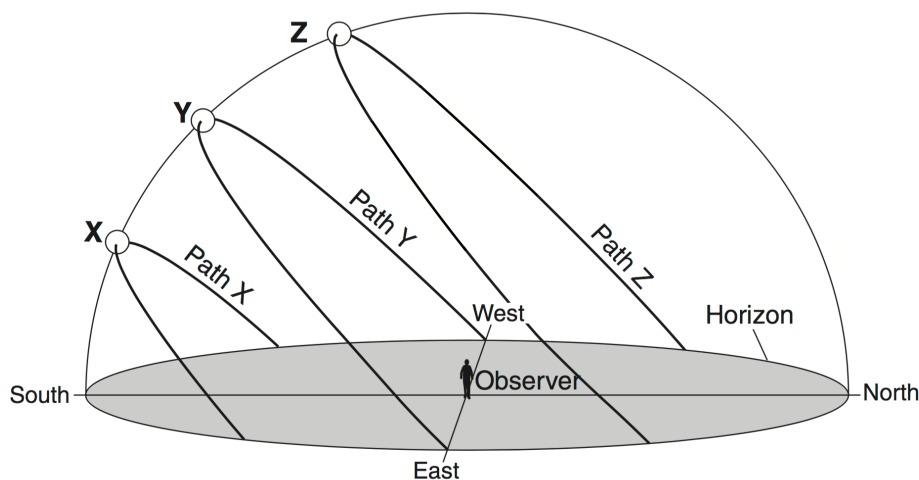


Name: \_\_\_\_\_

Date: \_\_\_\_\_ Period: \_\_\_\_\_

## Worksheet: Apparent Motions II

Questions 1 through 3 refer to the diagram below that represents a plastic hemisphere upon which lines have been drawn to show the apparent paths of the Sun on three days at one location in the Northern Hemisphere.



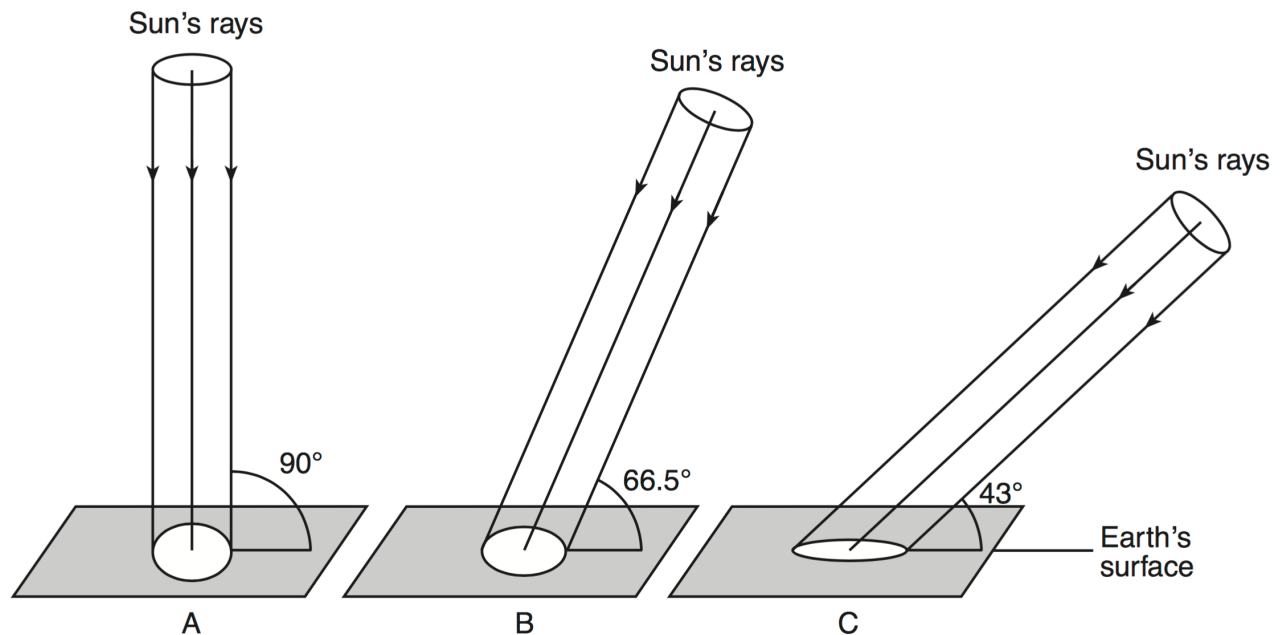
1. What is the rate that the Sun appears to travel along path X from sunrise to sunset?
  - a.  $10^\circ$  per hour
  - b.  $15^\circ$  per hour
  - c.  $23^\circ$  per hour
  - d.  $24^\circ$  per hour
2. Which path of the Sun would result in the longest shadow of the Observer at solar noon?
  - a. Path X
  - b. Path Y
  - c. Path Z
  - d. none of the above
3. What is one possible date that is represented by Path X?
  - a. December 21
  - b. March 21
  - c. June 21
  - d. September 21
4. What is one possible date that is represented by Path Z?
  - a. December 21
  - b. March 21
  - c. June 21
  - d. September 21

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## Worksheet: Apparent Motions II

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Base your answers to questions 5 through 6 on the diagrams below and on your knowledge of Earth science. The diagrams, labeled A, B, and C, represent equal-sized portions of the Sun's rays striking Earth's surface at  $23.5^\circ$  N latitude at noon at three different times of the year. The angle at which the Sun's rays hit Earth's surface and the relative areas of Earth's surface receiving the rays at the three different angles of insolation are shown.



5. As viewed in sequence from A to B to C, these diagrams represent which months and which change in the intensity of insolation?
- December  $\rightarrow$  March  $\rightarrow$  June; and decreasing intensity
  - December  $\rightarrow$  March  $\rightarrow$  June; and increasing intensity
  - June  $\rightarrow$  September  $\rightarrow$  December; and decreasing intensity
  - June  $\rightarrow$  September  $\rightarrow$  December; and increasing intensity
6. As the angle of the Sun's rays striking Earth's surface at noon changes from  $90^\circ$  to  $43^\circ$ , the length of a shadow cast by an object will
- decrease
  - increase
  - increase, then decrease
  - decrease, then increase