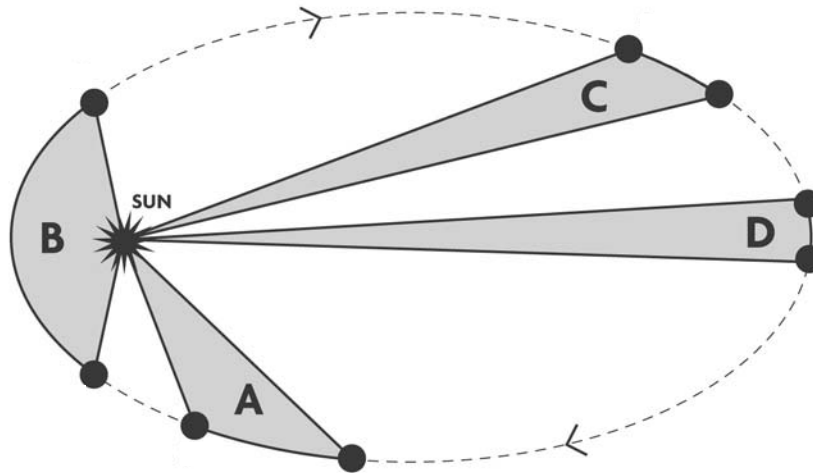


Astronomy Ranking Task: Kepler's Laws - Orbital Motion

Exercise #1

Description: The figure below shows several positions of a comet traveling in an elliptical orbit around the Sun. Four different segments of its orbit (A – D), and the corresponding triangular shaped area swept out by the comet, have been shaded in gray. Assume that each of the shaded triangular segments have the same area.



A. Ranking Instruction: Rank the time it took (from greatest to least) for the comet to move along each of the segments (A – D) of the orbit.

Ranking Order: Greatest 1 _____ 2 _____ 3 _____ 4 _____ Least

Or, the time to travel each segment would be the same. _____ (indicate with check mark).

Carefully explain your reasoning for ranking this way:

B. Ranking Instructions: Rank the distance (from greatest to least) the comet traveled during each of the segments (A – D) of the orbit.

Ranking Order: Greatest 1 _____ 2 _____ 3 _____ 4 _____ Least

Or, the distance traveled during each segment would be the same. _____ (indicate with check mark).

Carefully explain your reasoning for ranking this way:

C. Ranking Instructions: Rank the speed (from slowest to fastest) of the comet during each segment (A – D) of the orbit.

Ranking Order: Slowest 1_____ 2_____ 3_____ 4_____ Fastest

Or, the speed of the comet during each of the segments would be the same. _____ (indicate with check mark).

Carefully explain your reasoning for ranking this way:
