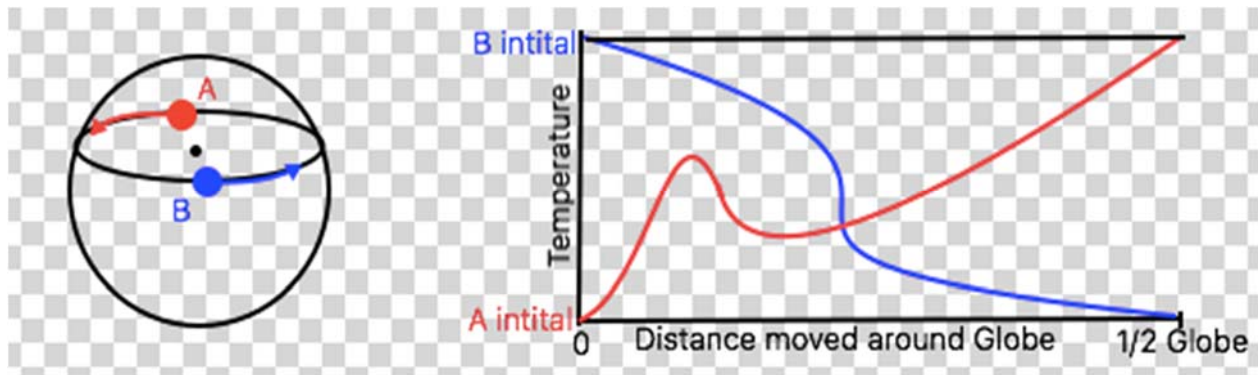Problem of the Fortnight #6
Kevin Sheridan, Jr.

(The temperature at any spot on Earth does not change from its initial in this model because every data point is recorded instantaneously.)

Point A represents the temperature where I am on the globe at the 40-degree latitude. Point B represents the point on the 40-degree latitude that is always directly on the other side of the planet. As I walk around the planet recording the temperature points A and B move with me. The temperature-position graph that forms creates an unpredictable but continuous curve. I stop when I reach point B's initial position. Point B is also at point A's initial position. Because the curves are continuous, curve A reaches point B's initial temperature, and curve B reaches point A's initial temperature, the curves of A and B must cross at at least one point on the graph. This intersection is a point where A and B, which are always opposite from one another, have the exact same temperature.