

Maths Circle Explorations: Session 2

November 12, 2021

4. A very thin circular metal ring is heated unevenly by a collection of candles that are placed at various points along the ring. A few milliseconds after the heat source is removed, some parts of the ring are hot while others are cold. The only thing that we know is that at any given moment the temperature varies continuously: an ant walking along the ring would not experience an abrupt change in the temperature at any point. Armed with just this knowledge, Hana claims that there exist two points on the ring that are diametrically opposite to each other, and are also at exactly the same temperature. Is she correct? Try to find a watertight argument to convince others of your conclusions.