

A handout on infinite series

1. An infinite number of mathematicians walk into a bar. The first one orders a beer. The second orders half a beer. The third order a quarter of a beer. The fourth orders an eighth, and so on.

The bartender says "You're all idiots", and pours two beers. What do you think of the bartender's action (abusive language aside!)?

2. Zeno of Elea (ca. 490 BC? – ca. 430 BC?) created several paradoxes, among which is Dichotomy:

It is impossible to cover any distance, because half the distance must be traversed first, then half the remaining distance, then again half of what remains, and so on. Some portion of the distance to be covered is ALWAYS left to cover. Therefore, motion is impossible.

Answer Zeno. In particular, assume that one walks at a constant rate of speed. How long should it take to cover the distance?