In lecture I asserted that the universal cover of an orientable surface of genus $g \geq 2$ is $\mathbb{R}^2$.

1. Convince yourself that for every $g \geq 2$, the surface of genus 2 has a $(g - 1)$-sheeted cover whose total space is a surface of genus $g$. So at least they all have the same universal cover.

2. If you have time to spare, try to convince yourself that the universal cover is really $\mathbb{R}^2$.  

Worksheet 15

Math 634, Algebraic Topology

Wednesday, November 11, 2020