MA 571: Homework # 7 due Monday October 19.

Please read Sections 27 and 29.

Please do:

- p. 171 # 8, 9, 12 (for # 12, you don't actually need that p is continuous and surjective)
- p. 177 # 2(bd) (the definition needed for 2(d) is given in 2(c).)
- p. 178 # 5
- p. 186 # 2(a), 10

A) Let S^1 denote the circle

$$\{(x, y) \in \mathbb{R}^2 \,|\, x^2 + y^2 = 1\}$$

and let B^2 denote the closed disk

$$\{(x, y) \in \mathbb{R}^2 \,|\, x^2 + y^2 \leq 1\}.$$

Prove that the quotient space $(S^1 \times [0, 1])/(S^1 \times \{0\})$ (see HW # 4 for the notation) is homeomorphic to B^2.