For (a) you can show, more generally, that any convex subset \( A \subseteq \mathbb{R}^n \) is contractible. (Note: There are many other examples of contractible spaces, not necessarily convex.)

2. (15 pts) Prove, using a diagram as indicated in class, the associative law for \((\pi_1(X, x_0), \ast)\).

3. (15 pts) Pb. 4, page 335, textbook.