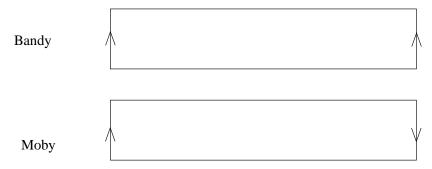
Homework 2 due on Monday, 1/30.

Remember, "yes" or "no" is not an acceptable answer. For now, I will put "Exp" wherever explanation is required, just for added emphases, to remind you, but I will soon stop and I will expect that you will still do it.

1. Give answers to the following questions both in set notation and in words:

What is an open disk of radius r around the point P in \mathbb{E}^2 ? What is a closed disk of radius r around the point P in \mathbb{E}^2 ? What is a circle of radius r around the point P in \mathbb{E}^2 ? How are these three sets related?

2. Take two strips of paper and make two spaces according to the following prescriptions:



Do Bandy and Moby have the same intrinsic topology (Exp)? Do they have same extrinsic topology (Exp)? Are they manifolds (Exp)?

- 3. Which of the following surfaces have the same local topology:
- (a) a plane
- (b) a sphere
- (c) a torus
- (d) a flat torus?

Why?

- 5. When do two surfaces have the same intrinsic topology and when do they have the same extrinsic topology?
- 6. a) Draw two surfaces with the same extrinsic topology.
- b) Draw two surfaces with different extrinsic topology.