

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.