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0.1 Disks

We defined an open disk at (a, b) of radius r as:

$$\{(x, y) \in \mathbb{R}^2 : (x - a)^2 + (y - b)^2 < r^2\}$$

For a closed disk it is:

$$\{(x, y) \in \mathbb{R}^2 : (x - a)^2 + (y - b)^2 \leq r^2\}$$

0.2 Annulus

An annulus is a disk, which excludes a smaller disk inside the disk

0.3 Punctured disk

If the interior disk is just a point, it is a punctured disk.