$X \cup_f Y := (X + Y)/\sim$, $in_1(a) \sim in_2(f(a))$

$g \circ in_2 : Y \to X + Y \to X \cup_f Y$ je vložitev

$g \circ in_1 : X \to X + Y \to X \cup_f Y$ ni nujno vložitev

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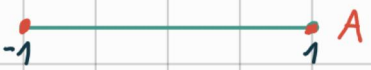
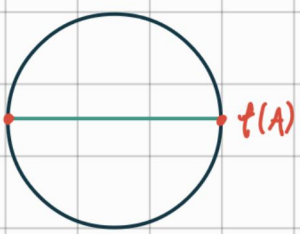
3.1) Ugotovi, kateremu prostoru je homeomorfen zlepek $X \cup_f Y$.

a) $X = [-1,1]$, $A = \{-1,1\}$, $Y = S^1$, $f(x) = (x,0)$

X:



Y:



$Z = ([-1,1] \times \{0\}) \cup S^1$

$g : X + Y \to Z$

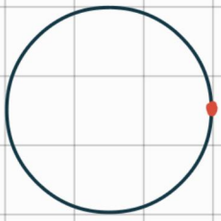
$in_1(x) \mapsto (x,0)$

$in_2(y) \mapsto y$

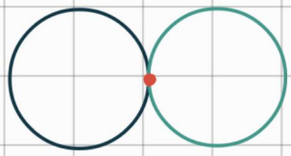
b) $X = [-1,1]$, $A = \{-1,1\}$, $Y = S^1$, $f(y) = (1,0)$

X:

Y:



$X \cup_f Y$:



$Z = S((0,0),1) \cup S((0,2),1)$

$g: X+Y \longrightarrow Z$

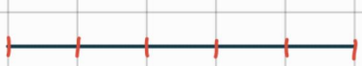
$in_1(x) \mapsto (\cos(\pi x)+2, \sin(\pi x))$

$in_2(y) \mapsto y$

c) $X = \mathbb{R}$, $A = \mathbb{Z}$, $Y = \mathbb{R}$, $f(x) = x$

X:

Y:



Z:

$Z = \Gamma_{\sin \pi x} \cup \Gamma_{-\sin \pi y} = \{(x,y) \; ; \; |y| = |\sin x|\}$

$g: X+Y \to Z$

$in_1(x) \mapsto (x, \sin(\pi x))$

$in_2(y) \mapsto (y, -\sin(\pi y))$