

True or False? (test 2, 4/12/2013)

Naam, Studentnr: _____

True		False
<input type="checkbox"/>	1. The function $\mathbb{R} \rightarrow \mathbb{R}_{\geq 0}, x \mapsto x^2$ is a homeomorphism.	<input type="checkbox"/>
<input type="checkbox"/>	2. The function $\mathbb{R}_{\leq 0} \rightarrow \mathbb{R}_{\geq 0}, x \mapsto x^2$ is a homeomorphism.	<input type="checkbox"/>
<input type="checkbox"/>	3. The function $[0, 2\pi) \rightarrow \mathbb{R}^2, t \mapsto (\cos(t), \sin(t))$ is an embedding.	<input type="checkbox"/>
<input type="checkbox"/>	4. If $f : X \rightarrow Y$ is a homeomorphism, then f is a continuous bijection.	<input type="checkbox"/>
<input type="checkbox"/>	5. If $f : X \rightarrow Y$ is a continuous injection, then it is an embedding.	<input type="checkbox"/>
<input type="checkbox"/>	6. A sphere from which we remove the north pole (i.e. $S^2 \setminus \{p_N\}$) is homeomorphic to the plane \mathbb{R}^2 .	<input type="checkbox"/>
<input type="checkbox"/>	7. Any torus is homeomorphic to the product of two circles.	<input type="checkbox"/>
<input type="checkbox"/>	8. The cylinder $(\mathbb{R} \times S^1)$ can be embedded in the plane (\mathbb{R}^2) .	<input type="checkbox"/>
<input type="checkbox"/>	9. A quotient of a Hausdorff space is always Hausdorff.	<input type="checkbox"/>
<input type="checkbox"/>	10. For a topological space (X, \mathcal{T}) and $A \subset X$, $\mathcal{T} _A$ is the largest topology on A with the property that the inclusion $i : A \rightarrow X, i(a) = a$ is continuous.	<input type="checkbox"/>
<input type="checkbox"/>	11. A subset U of a \mathbb{R} is open if and only if it can be written as a finite union of open intervals.	<input type="checkbox"/>
<input type="checkbox"/>	12. A space X is Hausdorff if and only if every sequence in X has at most one limit.	<input type="checkbox"/>
<input type="checkbox"/>	13. Any continuous function is sequentially continuous.	<input type="checkbox"/>
<input type="checkbox"/>	14. In any space X , a subset $A \subset X$ is closed if and only if $\overline{A} = A$.	<input type="checkbox"/>
<input type="checkbox"/>	15. If X is Hausdorff, then all one-point subset of X are closed.	<input type="checkbox"/>
<input type="checkbox"/>	16. The space obtained from \mathbb{R} by collapsing $[0, 1]$ to a point is homeomorphic to \mathbb{R} .	<input type="checkbox"/>
<input type="checkbox"/>	17. The cone of D^2 is homeomorphic to D^3 .	<input type="checkbox"/>
<input type="checkbox"/>	18. The cone of S^2 is homeomorphic to D^3 .	<input type="checkbox"/>
<input type="checkbox"/>	19. The identity map $(\mathbb{R}, \mathcal{T}_{Eucl}) \rightarrow (\mathbb{R}, \mathcal{T}_l)$ is continuous.	<input type="checkbox"/>
<input type="checkbox"/>	20. The identity map $(\mathbb{R}, \mathcal{T}_l) \rightarrow (\mathbb{R}, \mathcal{T}_{Eucl})$ is continuous.	<input type="checkbox"/>

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