Goed of Fout? (test 1, 27/11/2013)

Naam:________________________________

Studentnr.:____________________________

QUESTION 1 *If a space is metrizable then it is also:*

	Fout	**Goed**
Hausdorff.	☐	☒
1^{st} *countable.*	☐	☒
2^{nd} *countable.*	☒	☐

QUESTION 2 *If a topological space can be embedded in some* $\mathbb{R}^n$ *(for some* n*), then it is also:*

	Fout	**Goed**
Hausdorff.	☐	☒
metrizable.	☐	☒
1^{st} *countable.*	☐	☒
2^{nd} *countable.*	☐	☒

QUESTION 3 *A subset* $A \subset \mathbb{R}$ *is open in* $\mathbb{R}$ *(with respect to the Euclidean topology) if an only if:*

	Fout	**Goed**
It is an open interval.	☒	☐
It can be written as a union of a finite number of open intervals.	☒	☐
It can be written as a (arbitrary) union of open intervals.	☐	☒
It coincides with its interior (in $\mathbb{R}$*).*	☐	☒

QUESTION 4 *If we cut a Moebius band open through the middle circle then we obtain a space which is homeomorphic to:*

	Fout	**Goed**
A Moebius band.	☒	☐
A cyclinder.	☐	☒
two Moebius bands.	☒	☐
two cylinders.	☒	☐

	Fout	**Goed**
QUESTION 5 *A subset* U *of* $\mathbb{R}^2$ *is open in* $\mathbb{R}^2$ *(endowed with the Euclidean topology) if and only if it is the product* $U_1 \times U_2$ *of two opens* U_1, U_2 *of* $\mathbb{R}$	☒	☐.

Goed of Fout? Naam:______________________________

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QUESTION 6 *If a space is metrizable then it is also:*

	Fout	**Goed**
Hausdorff.	☐	☐
1^{st} *countable.*	☐	☐
2^{nd} *countable.*	☐	☐

QUESTION 7 *If a topological space can be embedded in some* $\mathbb{R}^n$ *(for some* n*), then it is also:*

	Fout	**Goed**
Hausdorff.	☐	☐
metrizable.	☐	☐
1^{st} *countable.*	☐	☐
2^{nd} *countable.*	☐	☐

QUESTION 8 *A subset* $A \subset \mathbb{R}$ *is open in* $\mathbb{R}$ *(with respect to the Euclidean topology) if an only if:*

	Fout	**Goed**
It is an open interval.	☐	☐
It can be written as a union of a finite number of open intervals.	☐	☐
It can be written as a (arbitrary) union of open intervals.	☐	☐
It coincides with its interior (in $\mathbb{R}$*).*	☐	☐

QUESTION 9 *If we cut a Moebius band open through the middle circle then we obtain a space which is homeomorphic to:*

	Fout	**Goed**
A Moebius band.	☐	☐
A cyclinder.	☐	☐
two Moebius bands.	☐	☐
two cylinders.	☐	☐

		Fout	**Goed**
QUESTION 10	*A subset* U *of* $\mathbb{R}^2$ *is open in* $\mathbb{R}^2$ *(endowed with the Euclidean topology) if and only if it is the product* $U_1 \times U_2$ *of two opens* U_1, U_2 *of* $\mathbb{R}$	☐	☐.