0/5 Questions Answered

Week 3 Friday Review Quiz

Student Name

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Q1 Cardinality of sets

2 Points

Which of the following sets are countably infinite? (select all that apply)

- [ ] The set of all languages over $\{0, 1\}$
- [ ] The set of all regular languages over $\{0, 1\}$
- [ ] The set of all strings over $\{0, 1\}$
- [ ] The set $\{0, 1\}$
- [ ] The set of all DFAs over $\{0, 1\}$ (whose states are labelled by integers)
- [ ] The set of all regular expressions over $\{0, 1\}$

Save Answer

Q2 True/ False

3 Points

True/ False: Every proper subset of a regular set is regular.

- True
- False

True/ False: Every proper subset of a nonregular set is nonregular.

- True
- False

True/ False: The complement of a regular set is regular.

- True
- False

True/False: The complement of a nonregular set is nonregular

- True
- False

True/ False: The union of any two regular sets is regular.

- True
- False

True/ False: The union of two nonregular sets is nonregular.

- True
- False

Save Answer

Q3 Pumping Lemma

2 Points

Select all and only true statements.

- [ ] All regular languages have pumping lengths.
- [ ] To prove that a language is regular, it's enough to show that it has a pumping length.
- [ ] To prove that a language is nonregular, it's enough to show that it does not have any pumping lengths.
- [ ] To prove that a specific positive integer is not a pumping length for a given language, we need to show that all strings are not "pumpable" relative to that length.
- [ ] To prove that a specific positive integer is not a pumping length for a given language, we need to show that all strings in that language that are longer than that number are not "pumpable" relative to that length.

Save Answer

Q4 Pumping length
3 Points

True/ False: A pumping length for $A = \{1, 01, 001, 0001, 00001\}$ is $p = 4$

- True
- False

True/ False: A pumping length for $A = \{0^j 1 \mid j \geq 0\}$ is $p = 3$

- True
- False

True/ False: For any language A, if p is a pumping length for A and $p' > p$, then p' is also a pumping length for A.

- True
- False

Save Answer

Q5 Feedback
0 Points

Any feedback about this week's material or comments you'd like to share? (Optional; not for credit)

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