1. Prove that the set of all real numbers is not countable.

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1. Show that if a language is not recursively enumerable, its complement cannot be recursive.

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1. Prove by reduction that the problem of determining whether any two given Turing machines accept the same language is undecidable.

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1. Prove by reduction (not by Rice's Theorem) that the problem "L(M) is regular" is undecidable.

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