CECS 329, Learning Outcome Assessment 1, February 1st, Spring 2024, Dr. Ebert

Problems

LO1. Answer the following.

(a) Provide the definition of what it means to be a mapping reduction from decision problem A to decision problem B.

(b) In relation to your answer to part a, if $f(n)$ is a valid mapping reduction from the **Even** decision problem to the **Odd** decision problem, then, if n is odd, then what must be true about $f(n)$? Explain.

(c) Is $f(n) = 7 - n$ a valid mapping reduction from the **Even** decision problem to the **Odd** decision problem? Justify your answer. Hint: if f is invalid, then a single input can be used to demonstrate invalidity. If f is valid, then provide a general reason (specific to f) for why it is valid.