Problem 1. Use JFLAP to design a (single-tape) Turing Machine that accepts the following language:

\[ UnaryTriples = \{1^a \triangle 1^a = 1^{3 \times a} : a \geq 1\}. \]

Test your machine for the following strings:
11\triangle 11 = 111111, 111\triangle 111 = 111111111, 1111\triangle 1111 = 11111111111,

Problem 2. Consider the following variation of the Turing machine model. On a right move, the head moves 2 positions. On a left move, the head moves 1 position. Show that this model is equivalent to the standard model (as described in the slides).

Problem 3. Briefly show that decidable languages are closed under union.

Problem 4. Briefly show that Turing-acceptable languages are closed under intersection.