Name:_____ Grade:_____<-- instructor use

1. If we have a machine M(x, y) that multiplies two integers, how can we use it to make a machine that accepts INTEGERPROD?

2. If we have a machine that accepts INTEGERPROD, how can we use it to multiply two integers?

3. Draw the diagram for a FSM (finite-state machine) that recognizes the language
   $L = \{ w \in \{0, 1\}^* : \exists n,k \in \mathbb{N} (w = \langle n \rangle \wedge n = 2^k)\}$ Where <n> means the binary representation of n.

4. Draw the diagram for a PDA (push-down automaton) that recognizes $L = \{wcw^R : w \in \{a, b\}^* \}$.

5. Describe (in English) the actions of a TM to recognize $A^nB^nC^n$.

Did not get to this question in 201220

6. What does it mean for a language to be *semidecidable*?

7. Draw a diagram for a nondeterministic PDA to accept PalEven = $\{ww^R : w \in \{a,b\}^*\}$

8. Tell your instructor about anything from today's session (or from the course so far) that you found confusing or still have a question about. If none, please write "None". Continue on the back if needed.