

**DUE: Dec 2, 2014: 4:45 pm TUESDAY!**

1. Build a **TWO** or **THREE** tape Turing Machine to determine if a set of numbers specified in base one are listed in sorted order (smallest to largest when reading left to right). You must be able to handle the base 1 representation of zero!

Sample input (accept):

1	1	#	1	1	1	1	#	1	1	1	1	1	1	1	1	#	□
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Explain why you choose TWO or THREE tapes:

<sup>1</sup>Write a textual description of your algorithm and <sup>2</sup>build your machine (circles and arrows *and* a paragraph)

2. Build a **ONE** tape Turing Machine to determine if a set of numbers specified in base one are listed in sorted order (smallest to largest when reading left to right). You must be able to handle the base 1 representation of zero!

Sample input:

1	1	#	1	1	1	1	#	1	1	1	1	1	1	1	1	#	□
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Write a textual description of your algorithm:

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4.3

4.4

4.6

4.7

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7.1 a b

7.6

**BONUS**

7.9

**BONUS**

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5.1