Give context-free grammars for each of the following languages. For each grammar, describe *in English* the language for each non-terminal, and in the examples above. As usual, we won't get to all of these in section. Skip those that were done in class.

1. Binary palindromes: Strings over $\{\texttt{0}, \texttt{1}\}$ that are equal to their reversals. For example: `00111100` and `0100010`, but not `01100`.

2. $\{\texttt{0}^{2n}\texttt{1}^n \mid n \geq 0\}$

3. $\{\texttt{0}^m\texttt{1}^n \mid m \neq 2n\}$

4. $\{\texttt{0}, \texttt{1}\}^* \setminus \{\texttt{0}^{2n}\texttt{1}^n \mid n \geq 0\}$

5. Strings of properly nested parentheses `()`, brackets `[]`, and braces `{}`. For example, the string `([]){}` is in this language, but the string `([)]` is not, because the left and right delimiters don't match.

6. Strings over $\{\texttt{0}, \texttt{1}\}$ where the number of `0`s is equal to the number of `1`s.

7. Strings over $\{\texttt{0}, \texttt{1}\}$ where the number of `0`s is *not* equal to the number of `1`s.