HINT for question 5 (x modulus 7 is 0
i.e. The binary number is divisible by 7)

Think of binary long division. The partial remainder at each stage is the
information you need to store in the states.

For example

```
\[
\begin{array}{c|c}
11 & 101001101010110 \\
\hline
111 & \text{111} \\
0110 & \text{0110} \\
000 & \text{000} \\
\hline
1100 & \text{1100} \\
111 & \text{111} \\
\hline
101 & \text{101}
\end{array}
\]
```

This (partial remainder) is the only info you need to store (in
the states) to find if remainder is 0 at the end.