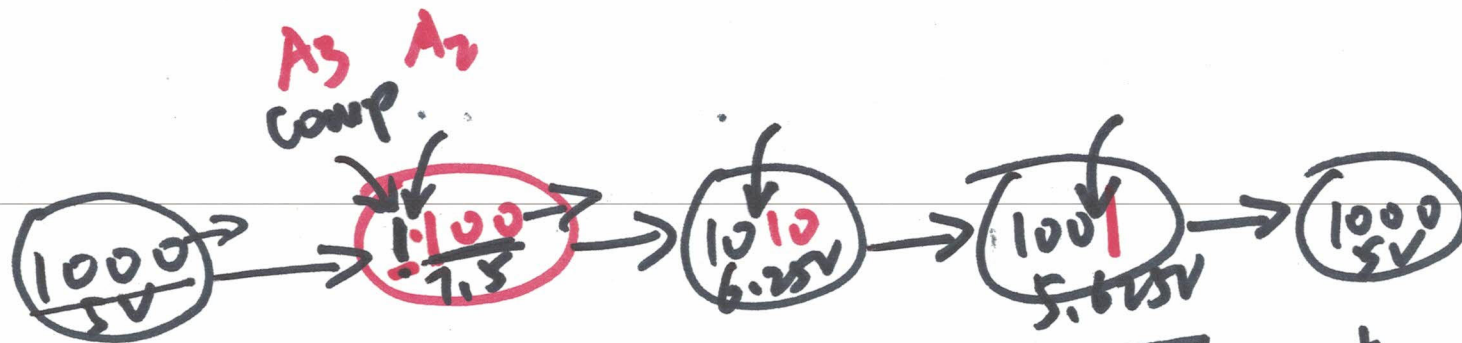




$$V_{ref} = 10 \text{ V.}$$

# SAR Algorithm



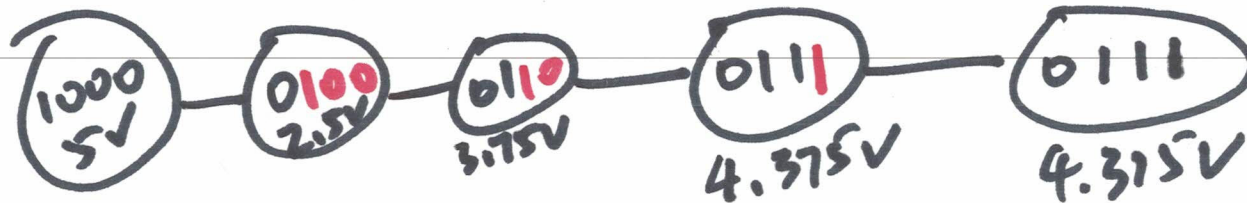
| Cycle | B <sub>3</sub> | B <sub>2</sub> | B <sub>1</sub> | B <sub>0</sub> | Comp Output    |
|-------|----------------|----------------|----------------|----------------|----------------|
| 0     | 0              | 0              | 0              | 0              |                |
| 1     | 1              | 0              | 0              | 0              | A <sub>3</sub> |
| 2     | A <sub>3</sub> | 1              | 0              | 0              | A <sub>2</sub> |
| 3     | A <sub>3</sub> | A <sub>2</sub> | 1              | 0              | A <sub>1</sub> |
| 4     | A <sub>3</sub> | A <sub>2</sub> | A <sub>1</sub> | 1              | A <sub>0</sub> |
| 5     | A <sub>3</sub> | A <sub>2</sub> | A <sub>1</sub> | A <sub>0</sub> |                |

$$V_{in} = 4.5V$$

4-bit <sup>SAR</sup> ADC

How many cycles?  $N+1$

5 cycles



③

