

$\frac{1}{b}$

$$(2017)_{10} \rightarrow (?)_2$$

$$\begin{array}{r|l} 2017 & 2 \\ - 2016 & \\ \hline & 1 \\ \hline 1008 & 2 \\ - 1008 & \\ \hline & 0 \\ \hline 504 & 2 \\ - 504 & \\ \hline & 0 \\ \hline 252 & 2 \\ - 252 & \\ \hline & 0 \end{array}$$

$$\begin{array}{r|l} 126 & 2 \\ - 126 & \\ \hline & 0 \\ \hline 63 & 2 \\ - 62 & \\ \hline & 1 \\ \hline 31 & 2 \\ - 30 & \\ \hline & 1 \\ \hline 15 & 2 \\ - 14 & \\ \hline & 1 \\ \hline 7 & 2 \\ - 6 & \\ \hline & 1 \end{array}$$

$$\begin{array}{r|l} 3 & 2 \\ - 2 & \\ \hline & 1 \end{array}$$

$$(2017)_{10} = \boxed{(1111100001)_2}$$