

1  
a

$$(1011011.001)_2 = (1 \cdot 2^6 + 1 \cdot 2^4 + 1 \cdot 2^3 + 1 \cdot 2^1 + 1 \cdot 2^0 + 1 \cdot 2^{-1} + 1 \cdot 2^{-2} + 1 \cdot 2^{-3})_{10}$$

$$= (64 + 16 + 8 + 1 + 0.125)_{10}$$

$$= (91.125)_{10}$$

b

$$\begin{array}{r} 2017 \div 2 = 1008 \text{ remainder } 1 \\ 1008 \div 2 = 504 \text{ remainder } 0 \\ 504 \div 2 = 252 \text{ remainder } 0 \\ 252 \div 2 = 126 \text{ remainder } 0 \\ 126 \div 2 = 63 \text{ remainder } 0 \\ 63 \div 2 = 31 \text{ remainder } 1 \end{array}$$

$$\begin{array}{r} 31 \div 2 = 15 \text{ remainder } 1 \\ 15 \div 2 = 7 \text{ remainder } 1 \\ 7 \div 2 = 3 \text{ remainder } 1 \\ 3 \div 2 = 1 \text{ remainder } 1 \end{array}$$

$$(2017)_{10} = (11111100001)_2$$