

文①

$$\begin{aligned}
 \text{問1} \quad 6.75_{(10)} &= 6 + \frac{3}{4} \\
 &= 4 + 2 + \frac{1}{2} + \frac{1}{4} \\
 &= 1 \cdot 2^2 + 1 \cdot 2^1 + 0 \cdot 2^0 + 1 \cdot 2^{-1} + 1 \cdot 2^{-2} \\
 &= \underline{110.11}_{(2)}
 \end{aligned}$$

また、これと

$$\begin{aligned}
 101.0101_{(2)} &= 2^2 + 2^0 + 2^{-2} + 2^{-4} \\
 &= 4 + 1 + \frac{1}{4} + \frac{1}{16} \\
 &= 5 + \frac{5}{16}
 \end{aligned}$$

との積を A とおくと

$$\begin{aligned}
 A &= \left(6 + \frac{3}{4}\right) \times \left(5 + \frac{5}{16}\right) \\
 &= 30 + \frac{15}{4} + \frac{30}{16} + \frac{15}{64} \\
 &= 30 + \frac{375}{64} \\
 &= 35 + \frac{55}{64}
 \end{aligned}$$

$$\begin{aligned}
 \text{また, } 35 + \frac{55}{64} &= 32 + 2 + 1 + \frac{32 + 16 + 4 + 2 + 1}{64} \\
 &= 2^5 + 2^1 + 2^0 + 2^4 + 2^3 + 2^{-4} + 2^{-5} + 2^{-6}
 \end{aligned}$$

$$\text{だから, } A = \underline{100011.110111}_{(2)}$$

$$\begin{aligned}
 \text{一方, } 35 + \frac{55}{64} &= 32 + 3 + \frac{48 + 4 + 3}{64} \\
 &= 2 \cdot 4^2 + 3 \cdot 4^0 + 3 \cdot 4^{-1} + 4^{-2} + 3 \cdot 4^{-3}
 \end{aligned}$$

$$\text{だから, } A = \underline{203.313}_{(4)}$$