

[I]

(1)

$$\begin{aligned}\frac{1}{4^x} - \frac{3}{2^{x-1}} + 8 &= (2^{-x})^2 - 3 \cdot 2(2^{-x}) + 8 \\ &= t^2 - 6t + 8 \quad \dots\dots(\text{答})\end{aligned}$$

(2) $t = 2^{-x}$ とおくと, $t > 0$ で, (1) より,

$$\begin{aligned}\frac{1}{4^x} - \frac{3}{2^{x-1}} + 8 &< 0 \\ t^2 - 6t + 8 &< 0 \\ (t-2)(t-4) &< 0 \\ 2 < t < 4 \quad (t > 0 \text{ をみたす})\end{aligned}$$

よって,

$$2^1 < 2^{-x} < 2^2$$

底 $2 > 1$ より,

$$\begin{aligned}1 &< -x < 2 \\ -2 &< x < -1 \quad \dots\dots(\text{答})\end{aligned}$$

(3) $t = 2^{-x}$ とおくと, $t > 0$ で,

$$\begin{aligned}\frac{1}{4^x} - \frac{1}{2^{x-1}} - 8 &< 0 \\ (2^{-x})^2 - 2(2^{-x}) - 8 &< 0 \\ t^2 - 2t - 8 &< 0 \\ (t-4)(t+2) &< 0\end{aligned}$$

$t > 0$ より,

$$0 < t < 4$$

$$0 < 2^{-x} < 2^2$$

底 $2 > 1$ より,

$$-x < 2$$

よって,

$$x > -2 \quad \dots\dots(\text{答})$$

〔Ⅱ〕

①	5
②	$-4p$
③	$5p$
④	-7
⑤	-6

〔Ⅲ〕

①	$2x-1$
②	$1-k$
③	$2k$
④	$1+k^2$
⑤	$\frac{1}{3}$