

6月8日 calc 4. 7 21 解 終

$$I \quad y = \frac{\log t}{t} \quad a = \frac{1}{10} \text{ 減速}$$

($t > 0$)

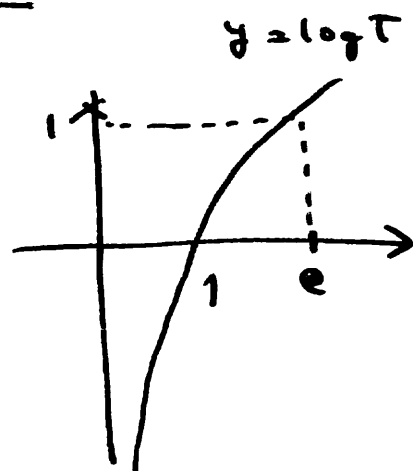
$$y' = \frac{(\log t)'t - \log t \cdot (t)'}{t^2}$$

$$= \frac{1 - \log t}{t^2}$$

∴

$$y' \geq 0 \Leftrightarrow t \leq e$$

∴ 0.3. y 2 増加 減速



t	(0)		e	
y'	/	+	0	-
y		↗	$\frac{1}{e}$	↘

• $t \rightarrow +0$ $a \in \mathbb{R}$ $\frac{1}{t} \rightarrow +\infty$, $\log t \rightarrow -\infty$ 2" 83

∴ $y \rightarrow -\infty$

• $t \rightarrow +\infty$ $a \in \mathbb{R}$

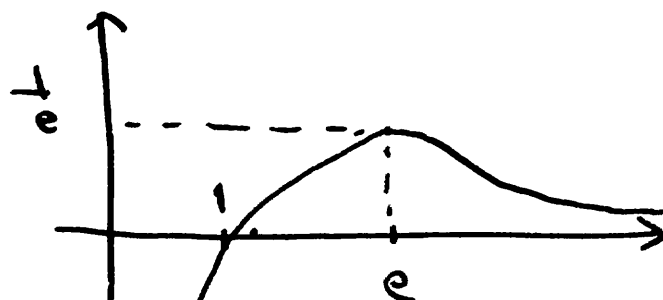
$s = \log t$ 232

$s \rightarrow +\infty$ 232

$$\frac{\log t}{t} = \frac{s}{e^s} \rightarrow 0$$

2 323.

2. 4. 5 0.3 5.3 2.12 F (2)



II $y = t^{\frac{1}{3}}(t-1) \quad (t > 0)$ の増減表.

$$\begin{aligned} y' &= (t^{\frac{1}{3}})'(t-1) + t^{\frac{1}{3}}(t-1)' \\ &= \frac{1}{3} t^{-\frac{2}{3}}(t-1) + t^{\frac{1}{3}} \\ &= \frac{1}{3} t^{-\frac{2}{3}} \left\{ (t-1) + 3t^{\frac{2}{3}} \cdot t^{\frac{1}{3}} \right\} \\ &= \frac{1}{3} t^{-\frac{2}{3}} (4t-1) \end{aligned}$$

$$\therefore x' = \frac{1}{3} t^{-\frac{2}{3}} > 0 \quad 2^{\text{度}} \text{ の } x' > 0$$

$$x' \geq 0 \iff t \geq \frac{1}{4}$$

2. 4. 5. 増減表は、下図.

(0)		$\frac{1}{4}$	
	-	0	+
(0)	↘		↗

$$t \rightarrow 0^+ \text{ a.e. } t^{\frac{1}{3}} \rightarrow 0 \text{ a.e. } 0$$

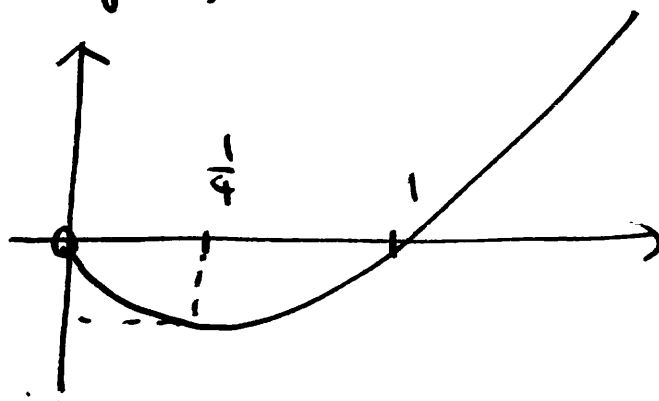
$$y = t^{\frac{1}{3}} (t - 1) \rightarrow 0 \cdot (-1) = 0$$

$$t \rightarrow +\infty \text{ a.e. } 2$$

$$t^{\frac{1}{3}} \cdot (t - 1) = t^{\frac{2}{3}} \left(1 - \frac{1}{t}\right)$$

$$\rightarrow +\infty \cdot 1 = +\infty$$

$$F') \quad y \rightarrow +\infty$$



$$y'' > 0 \text{ a.e. } 2$$