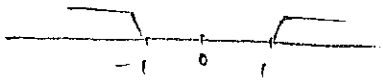
95 【不等式】以下の不等式を解け.

(1) $|2x-3|>1$



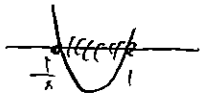
$2x-3<-1$, $1<2x-3$.

$2x<2$, $4<2x$

$x<1$, $2<x$

(2) $2x^2-3x+1\leqq 0$

$(2x-1)(x-1)\leq 0$



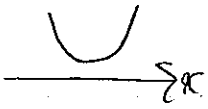
左図より

$\frac{1}{2}\leq x\leq 1$

(3) $x^2+3x+5>0$

$x^2+3x+5=0$ について

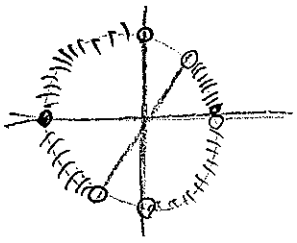
$D=9-20<0$



解は すべての実数

(4) $\tan x<1$ $(0\leqq x<2\pi)$

傾き1未満



$0\leq x<\frac{\pi}{4}$, $\frac{\pi}{2}<x<\frac{5}{4}\pi$.

$\frac{3}{2}\pi<x\leq 2\pi$.

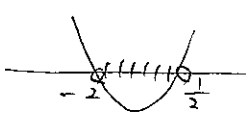
(5) $2\sin^2 x\geqq 3\cos x$ $(0\leqq x<2\pi)$

$\sin^2 x=1-\cos^2 x$ より

$2(1-\cos^2 x)\geq 3\cos x$

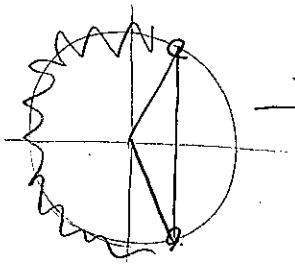
$2\cos^2 x+3\cos x-2\leq 0$

$(2\cos x-1)(\cos x+2)\leq 0$



$-2<\cos x<\frac{1}{2}$

よって, $-1\leq\cos x<\frac{1}{2}$



$\therefore \frac{\pi}{3}<x<\frac{5}{3}\pi$

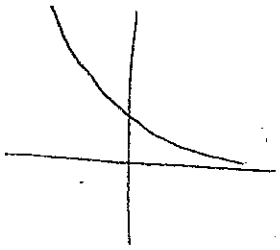
(6) $\left(\frac{1}{2}\right)^{2x-1} < 8$

$\left(\frac{1}{2}\right)^{2x-1} < \left(\frac{1}{2}\right)^{-3}$

$2x-1 > -3$

$2x > -2$

$x > -1$ //



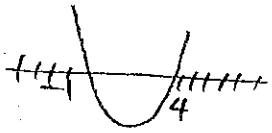
(7) $16^x - 3\cdot 4^x - 4 > 0$

$4^x = t$ とおく. $t > 0$. —①

$t^2 - 3t - 4 > 0$

$(t-4)(t+1) > 0$

①より. $4 < t$



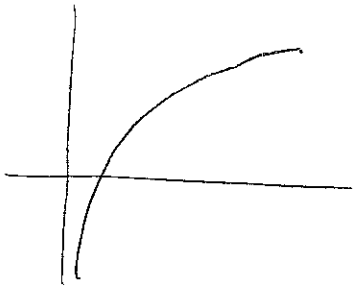
$\therefore 4 < 4^x$

$1 < x$ //

(8) $\log_4 x < 2$

$\log_4 x < \log_4 16$

$x < 16$ //



(9) $\log_3(x-4) + \log_3(x-2) \leqq 1$

真数条件. $x-4>0$ $x>4$ $\therefore x > 4$. —①

$x-2>0$ $x>2$

$\log_3(x-4)(x-2) \leq \log_3 3$

$(x-4)(x-2) \leq 3$.

$x^2 - 6x + 5 \leq 0$

$(x-5)(x-1) \leq 0$

$1 \leq x \leq 5$ —②

①. ②より)

$4 < x \leq 5$ //