Решите неравенство:

$$\log_{\frac{25-x^2}{16}}\left(\frac{24-2x-x^2}{14}\right)>1$$

Решение:

ОДЗ

$$\begin{cases}\frac{25-x^2}{16}>0\\ \frac{25-x^2}{16}\neq 1\\ \frac{24-2x-x^2}{14}>0\end{cases}$$

$-x^2-2x+24=0$

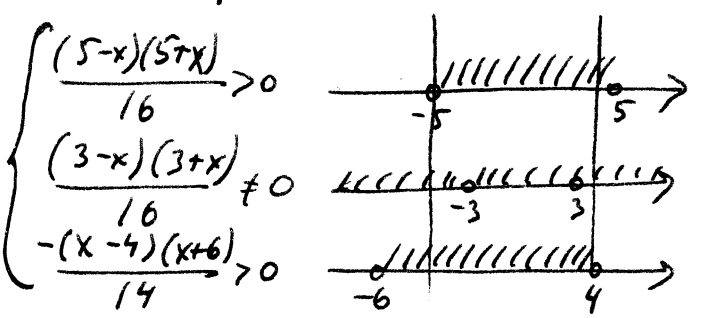
$D=4+4\cdot 24=$

$=4+96=100$

$\left[\begin{array}{l}x_1=-6\\ x_2=4\end{array}\right.$

$$\begin{cases}\frac{(5-x)(5+x)}{16}>0\\ \frac{25-x^2-16}{16}\neq 0\\ -\frac{(x-4)\cdot(x+6)}{14}>0\end{cases}$$

$$\begin{cases}\frac{(5-x)(5+x)}{16}>0\\ \frac{(3-x)(3+x)}{16}\neq 0\\ -\frac{(x-4)(x+6)}{14}>0\end{cases}$$



$x\in(-5;4)/\{-3\}/\{3\}$

1) $\frac{25-x^2}{16}>1$

$\frac{9-x^2}{16}>0$

$x\in(-3;3)$

$\Rightarrow \frac{24-2x-x^2}{14}>\frac{25-x^2}{16}$

$24\cdot 16-32x-16x^2>25\cdot 14-14x^2$

$24\cdot 16-25\cdot 14-32x-2x^2>0$

$-2x^2-32x+24\cdot 16-25\cdot 14>0$

$-x^2-16x+12\cdot 16-25\cdot 7>0$

$-x^2-16x+12(14+2)-25\cdot 7>0$

$-x^2-16x+12\cdot 14+24-25\cdot 7>0$

$-x^2-16x+24\cdot 7+24-25\cdot 7>0$

$-x^2-16x+24-7>0$

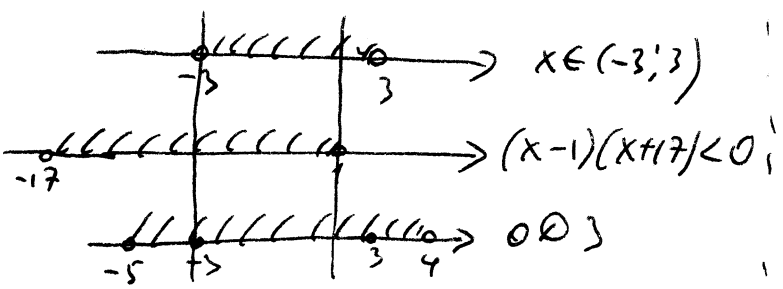
$-x^2-16x+17>0$

$x^2+16x-17<0$

$(x+8)^2-81<0$

$(x+8-9)(x+8+9)<0$

$(x-1)(x+17)<0$



$x\in(-3;1)$

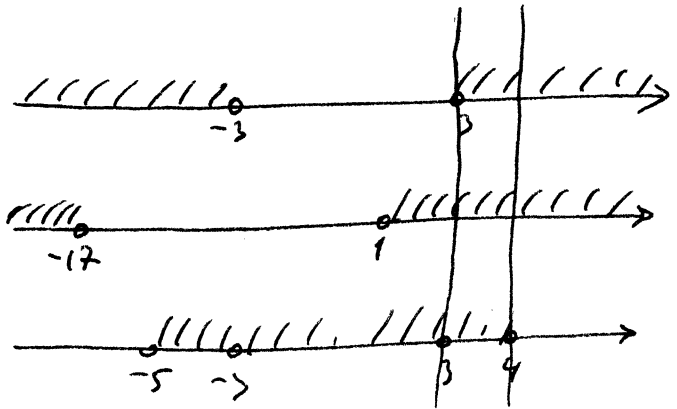
2) $\frac{25-x^2}{16}<1$

$\frac{9-x^2}{16}<0$ $\quad x\in(-\infty;-3)\cup(3;+\infty)$

$\frac{24-2x-x^2}{14}<\frac{25-x^2}{16}$

аналогично пункту 1 при решении неравенства получим:

$(x-1)(x+17)>0$



$x \in (-\infty; -3) \cup (3; +\infty)$

$(x-1)(x+17) > 0$

$0 \supset 3$

$x \in (3; 4)$

Ouble: $x \in (-3; 1) \cup (3; 4)$