$$\frac{\log_a b}{\log_a c} = \log_a b - \log_a c$$

$$x_1 = \log_a b \Rightarrow a^{x_1} = b$$

$$x_2 = \log_a c \Rightarrow a^{x_2} = c$$

$$\frac{a^{x_1}}{a^{x_2}} = \frac{b}{c}$$

$$a^{x_1 - x_2} = \frac{b}{c} \Rightarrow x_1 - x_2 = \log_a \frac{b}{c}$$

$$\log_a b - \log_a c = \log_a \frac{b}{c}$$

$$\log_a b^c = c\log_a b$$

$x = \log_a b \Rightarrow a^x = b$

$a^{cx} = b^c$

$cx = \log_a b^c$

$c\log_a b = \log_a b^c$

$$\log_a b = \frac{\log_c b}{\log_c a}$$

$x_1 = \log_a b$ $\qquad$ $x_2 = \log_c a$

$\Downarrow$ $\qquad$ $\Downarrow$

$a^{x_1} = b$ $\qquad$ $c^{x_2} = a$

$c^{x_2 x_1} = b$

$x_2 x_1 = \log_c b$

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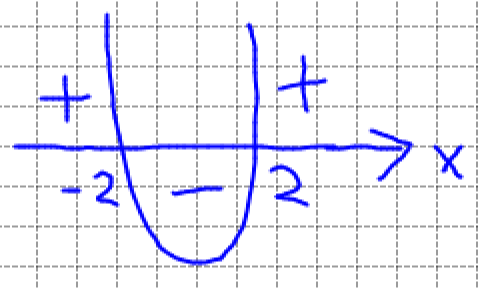
$$\frac{3^{-x+4}\cdot\left(x^4-16\right)}{5^{1-x}-5^{2x}} \le 0$$

$N>0 \Rightarrow \left(3^{-x+4}\right)\left(x^4-16\right)>0$

- $\left(3^{-x+4}\right) \ge 0 \rightarrow \forall x \in \mathbb{R}$
- $\left(x^4-16\right) \ge 0 \rightarrow x^4 \ge 16 \Rightarrow x^4 = 16 \rightarrow x = \pm 2$



		-2		2		x
1)	$+$		$+$		$+$	
2)	$+$	$\bullet$	$-$	$\bullet$	$+$	
N	$+$	$\bullet$	$-$	$\bullet$	$+$	

$D>0 \rightarrow 5^{1-x}-5^{2x}>0 \rightarrow 5^{1-x}>5^{2x} \rightarrow 1-x>2x$

$3x<1 \Rightarrow x<\frac{1}{3}$

	$\frac{1}{3}$		x
$+$	$\circ$	$-$	

		-2		$\frac{1}{3}$		2		x
N	$+$	$\bullet$	$-$		$-$	$\bullet$	$+$	
D	$+$		$+$	$\nexists$	$-$		$-$	
$\frac{N}{D}$	$+$	$\bullet$	$-$	$\nexists$	$+$	$\bullet$	$-$	