N 166

$$\frac{2\left(3^x+1\right)}{3^x} = \frac{3\left(3^x+1\right)}{2\cdot 3^x+1}$$

C.E. $\left\{\forall x \in R \,\middle|\, \begin{cases} 3^x \neq 0 \\ 2\cdot 3^x+1\neq 0 \end{cases}\right\}$

$\begin{cases} 3^x \neq 0 \text{ sempre} \\ 2\cdot 3^x+1 \neq 0 \text{ SEMPRE} \end{cases}$

$$\frac{2\cdot 3^x+2}{3^x} = \frac{3\cdot 3^x+3}{2\cdot 3^x+1} \qquad 3^x = t$$

$$\frac{2\cdot t+2}{t} = \frac{3\cdot t+3}{2\cdot t+1}$$

$$\frac{2t+2}{t} = \frac{3t+3}{2t+1}$$

$$\frac{(2t+2)(2t+1)}{\cancel{t(2t+1)}} = \frac{3t^2+3t}{\cancel{t(2t+1)}}$$

$$4t^2+2t+4t+2 = 3t^2+3t$$

$$t^2+3t+2=0$$

$$t_{1,2} = \frac{-3\pm\sqrt{9-8}}{2} = \frac{-3\pm 1}{2} \quad \begin{cases} t_1=-2 & \cancel{3^x=-2} \\ t_2=-1 & \cancel{3^x=-1} \end{cases}$$

N 237

$$\frac{-6}{2^x-2} + \frac{9}{2^x-1} < 0 \quad *$$

S: $2^x<1 \quad 2<2^x<2^2$

S: $t<1 \quad 2<t<4$

$2^x = t$

$$\frac{-6}{t-2} + \frac{9}{t-1} < 0$$

N) $3t-12>0 \quad t>4$

D) $(t-1)(t-2)>0$

$t-1>0 \quad t>1$

$t-2>0 \quad t>2$

$$\frac{-6(t-1)+(t-2)9}{(t-1)(t-2)} < 0$$

$$\frac{-6t+6+9t-18}{(t-1)(t-2)} < 0$$

$$\frac{3t-12}{(t-1)(t-2)} < 0$$

		1		2		4	
N	−		−		−	0	+
D_1	−	0	+		+		+
D_2	−		−	0	+		+
N/D	−		+		−		+

*

$$2^x < 1 \;\longrightarrow\; 2^x < 2^0 \;\longrightarrow\; \boxed{x < 0}$$

$$2 < 2^x < 2^2 \;\longrightarrow\; \boxed{1 < x < 2}$$

N93

$$y = \frac{1}{\sqrt{3^x - 1}}$$

x	3^x	$3^x - 1$	$\sqrt{3^x - 1}$	$\frac{1}{\sqrt{3^x - 1}}$