ESERCIZIO N 60 PAG 65

$$\left|2^{x+1}-1\right| = 7$$

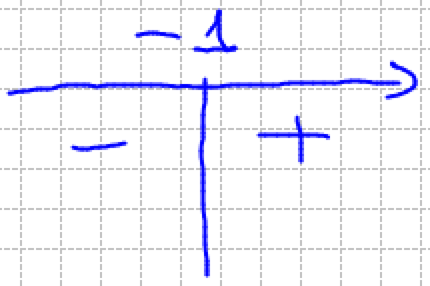
$2^{x+1}-1 \geq 0$

$2^{x+1} \geq 1$

$2^{x+1} \geq 2^0$

$x+1 \geq 0$

$x \geq -1$



Se $x < -1 \rightarrow -2^{x+1}+1 = 7$

$-2^{x+1} = 6$

$2^{x+1} = -6$ IMPOSS.

Se $x \geq 1 \rightarrow 2^{x+1}-1 = 7$

$2^{x+1} = 8$

$2^{x+1} = 2^3$

$x+1 = 3$

$x = 2 \rightarrow$ ACCETT.

n.66 p. 65

$2^{5x+2} + 2^{5x+8} - 32^{x+1} = 912$

$2^{5x+2} + 2^{5x+8} - 2^{5x+5} = 2^4 \cdot 3 \cdot 19$

$4 \cdot 2^{5x} + 256 \cdot 2^{5x} - 32 \cdot 2^{5x} = 2^4 \cdot 3 \cdot 19$

$2^{5x}(4+256-32) = 2^4 \cdot 3 \cdot 19$

$2^{5x}(228) = 912$

$2^{5x} = \frac{912}{228}$

$2^{5x} = 4 \rightarrow 2^{5x} = 2^2 \rightarrow 5x = 2 \rightarrow x = \frac{2}{5}$

n.79

$$\frac{3 \cdot 3^x + 3^{2-x} - 4}{3^x} = \frac{8}{3}$$

C.E. $= \left\{ x \in \mathbb{R} / 3^x \neq 0 \right\}$ SEMPRE

$$\frac{3^2 \cdot 3^x + 3 \cdot 3^{2-x} - 12 - 8 \cdot 3^x}{3^x \cdot 3} = 0$$

$(9-8)3^x + 3 \cdot 3^{2-x} - 12 = 0$

$3^x + 3 \cdot 3^{2-x} - 12 = 0$

$3^x + 3 \cdot \frac{3^2}{3^x} - 12 = 0$

$3^x + \frac{27}{3^x} - 12 = 0$

$3^{2x} + 27 - 12 \cdot 3^x = 0$ $\qquad 3^x = t$

$t^2 - 12t + 27 = 0$

$t_{1,2} = 6 \pm \sqrt{36-27} = 6 \pm \sqrt{9} = 6 \pm 3$ $\quad t_1 = 3$, $t_2 = 9$

$3^x = 3 \rightarrow x = 1$

$3^x = 9 \rightarrow 3^x = 3^2 \rightarrow x = 2$

n. 80

$$5^{1+\sqrt{x}}+5^{1-\sqrt{x}}=10$$

$$CE=\left\{x\in\mathbb{R} \,/\, \begin{cases}5^{\sqrt{x}}\neq 0\\ x\geq 0\end{cases}\right\}$$

$$[0;+\infty)$$

$$5\cdot 5^{\sqrt{x}}+\frac{5}{5^{\sqrt{x}}}=10$$

$$5\cdot 5^{2\sqrt{x}}+5=10\cdot 5^{\sqrt{x}}$$

$$5^{\sqrt{x}}=t$$

$$5\cdot t^2-10t+5=0$$

$$t^2-2t+1=0$$

$$t_{1,2}=1\pm\sqrt{1-1}=1$$

$$5^{\sqrt{x}}\cdot 5^{\sqrt{x}}=5^{\sqrt{x}+\sqrt{x}}=5^{2\sqrt{x}}$$

$$5^{\sqrt{x}}=1$$

$$5^{\sqrt{x}}=5^0 \longrightarrow \sqrt{x}=0$$

$$x=0$$

N 94

$$e^{2x}-5e^{x}-36=0 \qquad e^x=t$$

$$t^2-5t-36=0$$

$$t_{1,2}=\frac{5\pm\sqrt{25+144}}{2}=\frac{5\pm\sqrt{169}}{2}=\frac{5\pm 13}{2}=\begin{cases}-4\\ 9\end{cases}$$

$e^x=-4$ IMPOSSIBILE

$$e^x=9 \longrightarrow x=\ln 9$$

ESN 111

$5^x > 25$ $\qquad 5^x > 5^2$

$\boxed{x > 2}$

A MENTE

Siccome la base è >1 allora la corrispondente funzione esponenziale è crescente

$a > 1$

$a^{x_1} > a^{x_2} \iff x_1 > x_2$

N 113

$7^3 = \left(\frac{1}{7}\right)^{-3}$

$\left(\frac{1}{7}\right)^x \geq 343$ $\qquad \left(\frac{1}{7}\right)^x \geq \left(\frac{1}{7}\right)^{-3} \longrightarrow \boxed{x \leq -3}$

se $0 < a < 1$

$a^{x_1} > a^{x_2} \iff x_1 < x_2$

$7^{-x} \geq 7^3 \rightarrow -x \geq 3$

$\boxed{x \leq -3}$