es 550 COMPITI

$|1-x| = 3x$

$\begin{cases} 1-x \geq 0 \\ 1-x = 3x \end{cases} \cup \begin{cases} 1-x < 0 \\ -1+x = 3x \end{cases}$

$\begin{cases} x \leq 1 \\ x = \frac{1}{4} \end{cases} \quad \begin{cases} x > 1 \\ x = -\frac{1}{2} \text{ NO} \end{cases}$

$S \left\{\frac{1}{4}\right\}$

es 552 NO

$1 - |x| = x$

$-|x| = x - 1$

$\begin{cases} -x \geq 0 \\ -x = x - 1 \end{cases} \cup \begin{cases} -x < 0 \\ x = x - 1 \end{cases}$

$\begin{cases} x \leq 0 \\ -2x = -1 \\ x = \frac{1}{2} \text{ NO} \end{cases} \quad \begin{cases} x > 0 \\ 0x = -1 \text{ NO} \end{cases}$

es 554

$\left|3x + \frac{5}{2}\right| = 7x - \frac{1}{2}$

$\begin{cases} 3x + \frac{5}{2} \geq 0 \\ 3x + \frac{5}{2} = 7x - \frac{1}{2} \end{cases} \quad \begin{cases} 3x + \frac{5}{2} < 0 \\ -3x - \frac{5}{2} = 7x - \frac{1}{2} \end{cases}$

$\begin{cases} x \geq -\frac{5}{6} \\ -4x = 2 + \frac{3}{4} \end{cases} \cup \begin{cases} x < -\frac{5}{6} \\ -10x = 2 - \frac{1}{5} \end{cases}$

$S = \left\{\frac{3}{4}\right\}$

es 558 NO

$|x^2-4x|=x$

$\begin{cases} x(x-4)\geq 0 \\ x^2-4x=x \end{cases} \vee \begin{cases} x(x-4)<0 \\ -x^2+4x=x \end{cases}$

$x \geq 0$

$x-4 \geq 0 \quad x \geq 4$

$x \leq 0 \vee x \geq 4$

$x^2-3x=0$

$x(x-3)=0$

$x=0$ ok

$x=3$

$0<x<4$

$-x^2+3x=0$

$x(-x+3)=0$

$x=0$ NO

$x=3$ ok

$S=\{0;3\}$

es 566 NO

$|3-3x^2+x|=3(2x+1)$

$\begin{cases} 3-3x^2+x \geq 0 \\ 3-3x^2+x=6x+3 \end{cases} \vee \begin{cases} 3-3x^2+x<0 \\ -3+3x^2-x=6x+3 \end{cases}$

1) $-3x^2+x+3 \geq 0$

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

$-2 \leq x \leq 3$

$\begin{cases} 3-3x^2-5x=0 \\ x(3x+5)=0 \end{cases}$

$x=0$ ok $\quad x=-\frac{5}{3}$

$\begin{cases} -2 \leq x \leq 3 \\ x=0;\ \frac{5}{3} \end{cases}$ ok ok

$\begin{cases} x<-2 \vee x>3 \\ 3x^2-7x-6=0 \end{cases}$

$x_{1,2}=\frac{7 \pm \sqrt{9+72}}{6}$

$\begin{cases} x<-2 \vee x>3 \\ x=3;\ -\frac{2}{3} \end{cases}$ NO

$\vee$

$S=\{0;\frac{5}{3}\}$

es 584

$|1-|x|| = \frac{1}{2}$

$|1-x| = \frac{1}{2}$

$|1+x| = \frac{1}{2}$

$1-x = \pm\frac{1}{2}$

$+x = +\frac{1}{2}$

$+x = +\frac{3}{2}$

$1+x = \pm\frac{1}{2}$

$x = -\frac{3}{2}$

$x = -\frac{1}{2}$

$S = \left\{\pm\frac{1}{2}, \pm\frac{3}{2}\right\}$

es 571

$\left|\frac{1}{x-2}\right| = \frac{1}{2}$

$\left|\frac{1}{x-2}\right| = \frac{1}{2}$

$\begin{cases} \frac{1}{x-2} \geq 0 \\ \frac{1}{x-2} = \frac{1}{2} \end{cases} \vee \begin{cases} \frac{1}{x-2} < 0 \\ -\frac{1}{x-2} = \frac{1}{2} \end{cases}$

$\frac{2}{2(x-2)} = \frac{x-2}{2(x-2)}$

$c.e. \; 2x-4=0$
$x=2$

$c.e. \; x \neq 2 \begin{cases} x > 2 \\ x = 6 \end{cases} \vee \begin{cases} x < 2 \\ x = 0 \end{cases}$

$\frac{-2}{2(x-2)} = \frac{x-2}{2(x-2)}$

$S = \{6; 0\}$

es 576

$x - 6 = \pm 4 \quad \neq \pm(x-6) = 4$?

$|x-6| = 4$

$x - 6 = 4 \quad x = 10$

$-x + 6 = 4 \quad x = 2$

$S = \{10; 2\}$

es 576

$|5x - 1| = -2$

$\nexists \in \mathbb{R}$

~~$5x - 1 = 2 \quad x = \frac{1}{5}$~~

$-5x + 1 = -2 \quad x = \frac{3}{5}$

es 578

$|x(x-5)| = 14$

$x^2 - 5x = 14$

$x^2 - 5x - 14 = 0$

$x_{1,2} = 7; -2$

$-x^2 + 5x = 14$

$-x^2 + 5x - 14 = 0$

$x_{1,2} = -5 \pm \sqrt{25} - \text{IMP}$

$S = \{-2; 7\}$