869

a ∨    b ∨    c F    D ∨

es 671

$|6x+5| = (2-x)(2+x)+3+x^2$

$|4x+5| = 7$

$4x+5 = \pm 7$    $\left\{ \begin{array}{c} \frac{1}{2} \\ -3 \end{array} \right.$    $S = \left\{ \frac{1}{2}, -3 \right\}$

es 673

$|x^2+x| = -2x$

$\left\{ \begin{array}{l} x^2+x \geq 0 \\ x^2+x = -2x \end{array} \right.$    ∨    $\left\{ \begin{array}{l} x^2+x < 0 \\ x^2+x = 2x \end{array} \right.$

$\left\{ \begin{array}{l} x \leq -1 \vee x \geq 0 \\ x = \{0; -3\} \end{array} \right.$    ∨    $\left\{ \begin{array}{l} -1 < x < 0 \\ \{x=0, 1\} \end{array} \right.$

$x(x+1) = 0$    $\begin{array}{l} x=0 \\ x=-1 \end{array}$

$x \leq -1 \vee x \geq 0$

$x^2+3x > 0$    $x(x+3) = 0$
$x^2 - x > 0$
$x(x-1) = 0$

$S = \{-3, 0\}$

es 675

$|x^2-x| = |x^2-5x+4|$

$x^2 - x = x^2-5x+4$    $x=1$

$x^2-x = -x^2+5x-4$    $2x^2-6x+4=0$

$x^2-3x+2=0$    $x=1, 2$    $S = \{1, 2\}$

$$\frac{x^3 + 3x^2 - x - 3}{x+1} = 0$$

$$x\left|\frac{x^3 + 3x^2 - x - 3}{x+1}\right| = 0$$

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

$(x+1)(x-1)$

$$\cancel{\emptyset} \cancel{x} \left|\frac{(x+3)(x^2-1)}{x+1}\right| = 0$$

$$\left|\frac{(x+3)(x+1)(x-1)}{x+1}\right| = \cancel{x+3}$$

$$= \left|(x+3)\right|\left|(x-1)\right| = 0$$

$$(x+3)(x-1) = 0$$

$$x = -3, 1 \qquad S = \{-3, 1\}$$

es 679

$$-|x^2 - 7x| \geq 0$$

$$-x^2 + 7x \geq 0$$

$$x \leq 0 \lor x \geq 7$$

$$x(x+7) = 0$$

$$-x^2 + 7x = 0$$

$$S: \{x = 0, 7\}$$

es 681

$$\left|x^2 - 10x\right| - 6 > x - x^2$$

$$\left|x^2 - 10x\right| > -x^2 + x + 6$$

$$\begin{cases} x^2 - 10x \geq 0 \\ x^2 - 10x > -x^2 + x + 6 \end{cases} \cup \begin{cases} x^2 - 10x < 0 \\ -x^2 + 10x > -x^2 + x + 6 \end{cases}$$

$$\begin{cases} x \leq 0 \lor x \geq 10 \\ x < -\frac{1}{2} \lor x > 6 \\ x < -\frac{1}{2} \lor x \geq 10 \end{cases} \cup \begin{cases} 0 < x < 10 \\ x > \frac{2}{3} \\ \frac{2}{3} < x < 10 \end{cases} \cup$$

$$S: \quad x < -\frac{1}{2} \lor x > \frac{2}{3}$$

$x(x - 10) = 0$

$$2x^2 - 11x - 6 > 0$$

$$x_{1,2} = \frac{11 \pm \sqrt{121 + 48}}{4}$$

$$x < -\frac{1}{2} \lor x > 6$$

$$9x > \frac{6}{9}$$

$$S: \left] -\infty ; -\frac{1}{2} \right[ \cup \left[ \frac{2}{3}, +\infty \right[$$

es 083

$1 - |2x - 7| < 0$

$1 < |2x - 7|$

$x_1 \quad -2x + 7 = 0$

$-2x = -8$

$x = 4$

$-|2x - 7| < -1$

$-2x + 7 \ge 1$

$-2x + 7 < -1 \quad \lor \quad -2x - 7 < 1$

$\quad 2x > 8 \qquad\qquad 2x < 6$

$\quad x > 4 \qquad\qquad x < 3$

$S: \; x < 3 \; \lor x > 4$

es 685

$|x^2 - 9| + 5 < 0 \qquad \not\exists x \in \mathbb{R}$

es 687

$NO + (89 + 69) 1$

$\left| \dfrac{x + 1}{-x + 2} \right| > 2$

$N \quad |x + 1| > 2 \qquad\qquad x + 1 = \pm 2 \quad \begin{matrix} 1 \\ -3 \end{matrix} \qquad N: \; x < 3 \lor x > 1$

$\quad |-x + 2| > 2 \qquad\quad -x + 2 = \pm 2 \quad 0 \cdot 4 \qquad\quad D \quad x < 0 \lor x > 4$

$\quad\qquad\qquad\qquad\qquad\qquad\qquad -3 \; 0 \; 1 \; 4$

$S: \; x < -3 \; \lor \; 0 < x < 1 \; \lor x > 4$

es 689

$\left| \dfrac{3 - 2x}{x + 1} \right| < 1 \qquad\qquad 3 = 2x < 1$

pag 60 n 667

Fed

$|a+5| < |2a-1|$

$a^2 + 25 + 10a < 4a^2 + 1 - 4a$

$-3a^2 + 14a + 24 < 0$

$3a^2 - 14a - 24 > 0$

$a < -\frac{4}{3} \vee a > 6$

$a_{1,2} = \frac{7 \pm \sqrt{49 + 72}}{3} = \begin{cases} 6 \\ -\frac{4}{3} \end{cases}$

es 607

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

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

$|2x-2| - |2-x| = x - \frac{1}{3}$

$2x^2 - 2 \geq 0 \qquad x \leq -1 \vee x \geq 1$

$2 - x \geq 0 \qquad x \leq 2$



1) $\begin{cases} x < -1 \\ 2x - 2 - 2 + x = x - \frac{1}{3} \end{cases}$  impos.

2) $\begin{cases} x < 1 \\ -2x + 2 - 2 + x = x - \frac{1}{3} \end{cases}$   $x = \frac{1}{6}$  OK

3) $\begin{cases} 1 < 2 \\ 2x - 2 - 2 + x = x - \frac{1}{3} \end{cases}$

$2x = \frac{11}{3} \qquad x = \frac{11}{6} \qquad$ ok

4) $x \geq 2$

$2x - 2 + 2 - x = x - \frac{1}{3}$  NO

$S = \left\{ \frac{11}{6}, \frac{1}{6} \right\}$

§§ 693

$$\begin{cases} |x+5| < 7 \\ -x < |x+2| -1 \end{cases}$$

$$\begin{cases} -12 < x < 2 \end{cases}$$

$$\begin{cases} x+2 \ge 0 \\ x+2 > -x+1 \end{cases} \cup \begin{cases} x+2 < 0 \\ -x-2 > -x+1 \end{cases}$$

$$\begin{cases} -12 < x < 2 \\ x > -\frac{1}{2} \\ x > -2 \end{cases} \cup \quad \}$$

$$\begin{cases} -12 < x < 2 \\ x > -\frac{1}{2} \end{cases}$$

$$S: -\frac{1}{2} < x < 2$$

$$S: \left] -\frac{1}{2}, 2 \right[$$

es 691

$$\begin{cases} \dfrac{x^2}{x-1} \ge 0 \\ \dfrac{x^2}{x-1} > -x+3 \end{cases} \cup \begin{cases} \dfrac{x^2}{x-1} < 0 \\ -\dfrac{x^2}{x-1} > -x+3 \end{cases}$$

C.E. $x \neq 1$

$$\begin{cases} x > 1 \\ \dfrac{2x^2 - 6x + 3}{x-1} > 0 \end{cases} \cup \begin{cases} x < 1 \\ -\dfrac{4x+3}{x-1} > 0 \end{cases}$$

$x_{1,2} = 2 \pm \sqrt{4\cdot 8} \to Imp.$

$x > 1$ ... $x < 1$

$x > 1 \quad \cup \begin{cases} x < 1 \\ 3/4 < x < 1 \end{cases}$

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1° F
$x + 5 = \pm 7 \quad x = 2 \; ; \; x = -12$

2° F
$-x + 1 < |x+2|$
$x - 1 > -|x+2|$
$|x+2| > -x+1$
$x + 2 = \cdots$

$$\begin{cases} x \ge -2 \\ 2x > -1 \to x > -\frac{1}{2} \end{cases} \quad x < -2$$

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

$-2 \; -\frac{1}{2}$

$-12 \; -\frac{1}{2} \; 2$

$\dfrac{x^2}{x-1} \ge 0 \quad \forall x \in \mathbb{R} \quad x > 1$

$\dfrac{x^2}{x-1} > -x + 3$

$\dfrac{x^2}{x-1} > \dfrac{-x^2+x+3x-3}{x-1}$

$2x^2 - 6x + 3 > 0$

$x - 1 > 0 \quad x > 1$

$-\dfrac{x^2}{x-1} > -\dfrac{x^2+x}{x-1} + 3x - 3$

$x - 1$

$\frac{1}{\cdots} \quad \exists x \in \mathbb{R}$

$x < 1$

$x > 1 \cup \frac{3}{4} < x < 1$

$S: \frac{3}{4} < x < 1 \cup x > 1$

$S: \left] \frac{3}{4}; 1 \right[ \cup \left] 1; +\infty \right[$

es 689

$\left| \frac{3 - 2x}{x+1} \right| < 1$

⊕A  $\frac{3-2x}{x+1} = \pm 1$

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

$\frac{-3x+2}{} = 0$  ⓐ $x \neq -1$        $\frac{-x+4}{x+1} = 0$  ⓑ $x \neq -1$

$x = \frac{2}{3}$                              $x = 4$

$\frac{2}{3} < x < 4$

es 687

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

⊕A  $\frac{x+1}{2-x} = 2$          ⓐ $\frac{x+1}{2-x} = -2$

$\frac{x+1}{2-x} = \frac{4-2x}{2-x}$  ⓑ $x \neq 2$  $\frac{x+1}{2-x} = \frac{-4+2x}{2-x}$

$3x = 3$        $x = \frac{5}{3}$      $-x = -5$      $x = 5$

$x < \frac{5}{3} \lor x > 3$        $x < 1 \lor x > 5$