B

1. $(2-x)^3 - 5x(x-3) \geq 3x - x^2(x-1)$

$8 - 12x + 6x^2 - x^3 - 5x^2 + 15x \geq 3x - x^3 + x^2$

$8 \geq 0$

$\forall x \in R$

2. $\frac{7x}{x+1} + \frac{4}{x-1} \geq \frac{3x - 7x^2}{1-x^2}$

$\frac{7x}{x+1} + \frac{4}{x-1} \geq \frac{-3x + 7x^2}{(x-1)(x+1)}$

$\frac{7x^2 - 7x + 4x + 4 + 3x - 7x^2}{(x-1)(x+1)} \geq 0$

$\frac{4}{(x-1)(x+1)} \geq 0$

$x < -1 \vee x > 1$

3. $(x^2 - 5x - 14)(5x^2 - 3x - 2) \geq 0$

$(x-7)(x+2)(5x+2)(x-1) \geq 0$

$x \leq -2 \vee -\frac{2}{5} \leq x \leq 1 \vee x \geq 7$

4. $\begin{cases} x^2 - 5x \geq 0 \\ 4(x-3) + (1-x)(1+x) \leq 13 - x^2 \\ \frac{x-2}{x-4} > 0 \end{cases}$

$\begin{cases} x \leq 0 \vee x \geq 5 \\ 4x - 12 + 1 - x^2 \leq 13 - x^2 \\ x < 2 \vee x > 4 \end{cases}$

$\begin{cases} x \leq 0 \vee x \geq 5 \\ 4x \leq 24 \\ x < 2 \vee x > 4 \end{cases}$ $\quad$ $\begin{cases} x \leq 0 \vee x \geq 5 \\ x \leq 6 \\ x < 2 \vee x > 4 \end{cases}$

$x \leq 0 \vee 5 \leq x \leq 6$

5. $|x+2| - |x-3| = 2x + 1$

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

$x = -3$

$\begin{cases} -2 \leq x < 3 \\ x + 2 + x - 3 = 2x + 1 \end{cases}$ $\quad$ $\begin{cases} -2 \leq x < 3 \\ -1 = 1 \end{cases}$

imp.

$\begin{cases} x \geq 3 \\ x + 2 - x + 3 = 2x + 1 \end{cases}$ $\quad$ $\begin{cases} x \geq 3 \\ x = 2 \end{cases}$

imp.

6. $|2x-3|<5$

$\begin{cases} 2x-3<5 \\ 2x-3>-5 \end{cases} \qquad \begin{cases} 2x<8 \\ 2x>-2 \end{cases} \qquad -1<x<4$

7. $|3x-1|\le 3x$

$\begin{cases} x\le \frac{1}{3} \\ -3x+1\le 3x \end{cases} \qquad \begin{cases} x\le \frac{1}{3} \\ -6x\le -1 \end{cases} \qquad \begin{cases} x\le \frac{1}{3} \\ x\ge \frac{1}{6} \end{cases} \qquad \frac{1}{6}\le x\le \frac{1}{3}$

$\begin{cases} x>\frac{1}{3} \\ 3x-1\le 3x \end{cases} \qquad \begin{cases} x>\frac{1}{3} \\ -1\le 0 \end{cases} \qquad x>\frac{1}{3}$

$x\ge \frac{1}{6}$

8. $|x+2|+|7x-1|+|1-3x|\ge -13 \qquad \forall x\in R$