

## EJERCICIOS DE INECUACIONES

## Ejercicio 1

Resuelve en  $\mathbb{R}$  siguientes inecuaciones:

- |  |                       |                                 |  |
|--|-----------------------|---------------------------------|--|
| 1) $-4x + 1 < 0$                             | $S = (1/4, +\infty)$  | 6) $2x^2 - 15x + 7 \geq 0$      | $S = (-\infty, 1/2] \cup [7, +\infty)$         |
| 2) $5x - 3 \geq 0$                           | $S = [3/5, +\infty)$  | 7) $3x(3x - 2) < -1$            | $S = \emptyset$                                |
| 3) $\frac{4x}{3} - 2 \leq -2x + \frac{1}{3}$ | $S = (-\infty, 7/10]$ | 8) $3(x^2 + 1) \geq 2x(2 - x)$  | $S = \mathbb{R}$                               |
| 4) $\frac{3x+2}{4} + 1 > \frac{-3x}{4}$      | $S = (-1, +\infty)$   | 9) $\frac{7}{2}x^2 \leq 2x + 1$ | $S = [(4 - \sqrt{72})/14, (4 + \sqrt{72})/14]$ |
| 5) $7(-2x + 1) < -5(2x + 1)$                 | $S = (3, +\infty)$    | 10) $-4x^2 > -6x$               | $S = (0, 3/2)$                                 |
|  |                       | 11) $2x^2 + 32 < 0$             | $S = \emptyset$                                |

## Ejercicio 2

Resuelve en  $\mathbb{R}$  las siguientes inecuaciones:

Recuerda que:  $a \cdot b = 0 \Leftrightarrow a = 0 \text{ o } b = 0$   
 signo  $(a \cdot b) = (\text{signo } a) \cdot (\text{signo } b)$

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|--|---|
| 1) $(-10x + 3)(3x - 9) \geq 0$<br>$S = [3/10, 3]$                                      | 6) $(x^2 - 2)(x - 5) - 7(x - 5) \geq 0$<br>$S = [-3, 3] \cup [5, +\infty)$            |
| 2) $(3x^2 - 6)(\frac{2}{3}x - 4) < 0$<br>$S = (-\infty, -\sqrt{2}) \cup (\sqrt{2}, 6)$ | 7) $(x + 1)(2x^2 - 6) < (x + 1)(-x + 4)$<br>$S = (-\infty, -5/2] \cup [-1, 2]$        |
| 3) $(4x + 1)(x^2 - 2x + 1) \geq 0$<br>$S = [-1/4, +\infty)$                            | 8) $-9(x^2 - 25) - (x^2 - 25)(x^2 - 6x) > 0$<br>$S = (-5, 3) \cup (3, 5)$             |
| 4) $(-3x^2 + 7x)x < 0$<br>$S = (7/3, +\infty)$   | 9) $(x + 2)(x - 5)(x + 5) \leq 3(x - 5)(x + 2)x$<br>$S = (-2, 5/2] \cup [5, +\infty)$ |
| 5) $15(-3x^2 + 2x - 5)(x - 1) > 0$<br>$S = (-\infty, 1)$                               |   |

## Ejercicio 3

Resuelve en  $\mathbb{R}$  las siguientes inecuaciones:

Recuerda que: Si  $b \neq 0 \Rightarrow \text{signo } \frac{a}{b} = \frac{\text{signo } a}{\text{signo } b}$

- |                                  |                                    |  |   |
|----------------------------------|------------------------------------|--|---|
| 1) $\frac{3x-1}{-4x+3} \geq 0$   | $S = [1/3, 3/4)$                   | 5) $\frac{3-x}{x(x^2-9)} \leq 0$             | $S = (-\infty, -3) \cup (0, +\infty) - \{3\}$                       |
| 2) $\frac{4x^2-7x}{x+10} > 0$    | $S = (-10, 0] \cup [7/4, +\infty)$ | 6) $\frac{x^2(x-2)}{-x^2-1} \leq 0$          | $S = \{0\} \cup [2, +\infty)$                                       |
| 3) $\frac{5x^2-80}{2x-8} \leq 0$ | $S = (-\infty, -4]$                | 7) $\frac{-3x^2+6x-9}{x^2+4} \geq 0$         | $S = \emptyset$   |
| 4) $\frac{-x+7}{x^2+2} < 0$      | $S = (7, +\infty)$                 | 8) $\frac{(x^2-3x-5)(5-x)}{x^2+2x+1} \leq 0$ | $S = [(3-\sqrt{29})/2, (3+\sqrt{29})/2] \cup [5, +\infty) - \{-1\}$ |