

Diego Roberto Cuéllar #109 41 "B"

$$(40) x + 5 > 4$$

$$x > 4 - 5 \quad || \text{R} \quad x > -1$$

$$x > -1$$

$$(45) 3x + 2 - x < 4$$

$$3x - x < 4 - 2$$

$$2x < 2$$

$$x < 1$$

$$(41) x + 12 \leq -10$$

$$x \leq -10 - 12 \quad || \text{R} \quad x \leq -22$$

$$x \leq -22$$

$$(46) -5x - 2x < -8$$

$$-1(-7x < -8)$$

$$7x < 8$$

$$x < \frac{8}{7} \quad || \text{R} \quad x > \frac{8}{7}$$

$$(42) x - 6 \leq -19 \quad || \text{R} \quad x \leq -13$$

$$x \leq -19 + 6$$

$$x \leq -13$$

$$(43) x - 10 > -6 \quad || \text{R} \quad x > 4$$

$$x > -6 + 10$$

$$x > 4$$

$$(47) -8 + 6x - 6 < -9$$

$$6x < -8 + 6 - 9$$

$$6x < -11$$

$$x < \frac{-11}{6} \quad || \text{R} \quad x < \frac{2}{3}$$

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

$$(44) 2x + 3 \geq 5 \quad || \text{R} \quad x \geq 1$$

$$2x + 3 \geq 5$$

$$2x \geq 5 - 3$$

$$2x \geq 2$$

$$x \geq \frac{2}{2}$$

$$x \geq 1$$

$$(48) 3x + 4 - 2x \leq 7$$

$$3x - 2x \leq 7 - 4$$

$$x \leq 3$$

$$|| \text{R} \quad x < 3$$

$$(49) -3x + 4x + 5 \geq 8$$

$$-3x + 4x \geq 8 - 5$$

$$-1x \geq 3$$

$$|| \text{R} \quad x \geq 3$$

$$(40) 5x - 3x + 5 \geq -7$$

$$5x - 3x \geq -7 - 5$$

$$2x \geq -12 \quad || \text{R} \quad x \geq -6$$

$$x \geq \frac{-12}{2}$$

$$\textcircled{52} \quad 8x - 6 \leq 10 - x \quad R \mid] -\infty, 5]$$

$$8x + x \leq 10 + 6$$

$$9x \leq 16$$

$$x \leq \frac{16}{9} \quad x \leq 5$$

$$\textcircled{53} \quad 6z - 9 > 7 + 2z \quad R \mid] 4, +\infty[$$

$$6z - 2z > 7 + 9$$

$$4z > 16$$

$$z > 4$$

$$\textcircled{54} \quad -5x + 10 \leq -15 \quad R \mid [5, +\infty[$$

$$-5x \leq -15 - 10$$

$$-5x \leq -25$$

$$x \leq \frac{25}{5}$$

$$x \leq 5$$

$$\textcircled{55} \quad 13x - 7 < 3x + 8 \quad R \mid] -\infty, \frac{3}{2}[$$

$$13x - 3x < 7 + 8$$

$$10x < 15$$

$$x < \frac{15}{10} \quad x < \frac{3}{2}$$

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

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

$$\begin{aligned} (56) \quad & 4(3x-2) < 4x-2(6x+1) \quad R/I \quad]-\infty, \frac{3}{10}[\\ & 12x - 8 < 4x - 12x - 2 \\ & 12x - 8 < -8x - 2 \\ & 12x + 8x < -2 + 8 \\ & 20x < 6 \\ & x < \frac{6}{20} \quad x < \frac{3}{10} \\ & \quad \quad \quad \frac{20}{20} \quad \quad \quad 10 \end{aligned}$$

$$\begin{aligned} (57) \quad & 3(2x-1) - 2(x-3) \geq 3(3x-4) \quad R/I \quad]-\infty, 3] \\ & 6x - 3 - 2x + 6 \geq 9x - 12 \\ & 4x + 3 \geq 9x - 12 \\ & -4x - 9x \geq -12 - 3 \\ & -13x \geq -15 \\ & x \geq \frac{-15}{-13} = x \geq \frac{15}{13} \end{aligned}$$

Resolver la siguiente desigualdad:

$$\begin{aligned} 58. \quad & 0.5(1.8-x) > -2x \quad R/I \quad x > -0.6 \\ & 0.9 - 0.5x > -2x \\ & -0.5x + 2x > -0.9 \\ & 1.5x > -0.9 \\ & x > \frac{-0.9}{1.5} = x > -0.6 \end{aligned}$$

$$\text{Ej 59 } 2(-5x + 3) - (-x + 1) > 0 \quad \text{R11 } x < \frac{5}{9}$$

$$-10x + 6 + x - 1 > 0$$

$$-9x > -5$$

$$-(-9x > -5)$$

$$9x > 5$$

$$x > \frac{5}{9}$$

$$\text{Ej 60 } (4x - 7) + 2 < -x + 10 \quad \text{R11 } x < 3$$

$$4x - 7 + 2 < -x + 10$$

$$4x - 5 < -x + 10$$

$$4x + x < 10 + 5$$

$$5x < 15$$

$$x < 3$$

$$\text{Ej 61 } \frac{x}{5} + 2 \leq \frac{3 + x}{4} \quad \text{R11 } x \geq 25$$

$$4x + 40 \leq 5(3 + x)$$

$$4x + 40 \leq 15 + 5x$$

$$4x - 5x \leq 15 - 40$$

$$-x \leq -25$$

$$x \geq 25$$

$$62. \frac{6-4x}{2} \leq \frac{3x}{7} + \frac{1}{3} \quad R|| \quad x \geq \frac{56}{51}$$

$$\begin{aligned} 21(6-4x) &\leq 18x + 14 \\ 126 - 84x &\leq 18x + 14 \\ -84x - 18x &\leq 14 - 126 \\ -102x &\leq -112 \\ x &\leq \frac{-112}{-102} \end{aligned}$$

$$63. -x + 9x - 10 \leq -8 \quad R|| \quad x \leq \frac{1}{4}$$

$$\begin{aligned} -x + 9x &\leq -8 + 10 \\ 8x &\leq 2 \\ x &\leq \frac{2}{8} \\ x &\leq \frac{1}{4} \end{aligned}$$

Encuentra el menor valor en los números naturales que verifique cada inecuación.

Inecuación	Menor valor
64. $3x - 2 < 7$	$x = 2$
$3x < 7 + 2$	
$3x < 9$	
$x < \frac{9}{3}$	
$x < 3$	

$$\begin{aligned} 65 \quad x + 6 &> 10 \\ x &> 10 - 6 \\ x &> 4 \end{aligned}$$

$$x = 5$$

$$\begin{aligned} 66 \quad x - 5 &> 8 \\ x &> 8 + 5 \\ x &> 13 \end{aligned}$$

$$x = 13$$

$$\begin{aligned} 67 \quad 3 + x &> 10 \\ x &> 10 - 3 \\ x &> 7 \end{aligned}$$

$$x = 8$$

Encuentra la solución de las inecuaciones y exprésala en notación de corchetes.

$$68 \quad -8 < x + 5 < -2 \quad R \parallel]-13, -7[$$

$$-5 - 8 < x < -2 - 5$$

$$-13 < x < -7$$

$$69 \quad 6(7 + 2x) \geq 5(-x + 3) - 6x \quad R \parallel \left[-\frac{27}{23}, +\infty\right[$$

$$42 + 12x \geq -5x + 15 - 6x$$

$$42 + 12x \geq -11x + 15$$

$$12x + 11x \geq 15 - 42$$

$$23x \geq -27$$

$$x \geq -\frac{27}{23}$$

$$23$$

$$74. \frac{(x-13)}{3} > \frac{7(-x+3)}{3} - 6x \quad R \parallel] \frac{17}{13}, +\infty[$$

$$\frac{x-13}{3} > \frac{-7x+21}{3} - 6x$$

$$x-13 \geq -7x+21-18x$$

$$x-13 \geq -25x+21$$

$$x+25x \geq 21+13$$

$$26x \geq 34$$

$$x \geq \frac{34}{26} = x \geq \frac{17}{13}$$

$$75. 3(x-3)+2(x+6) > 1 \quad R \parallel] -\frac{2}{5}, +\infty[$$

$$3x-9+2x+12 > 1$$

$$5x > -9+1-12$$

$$5x > -2$$

$$x > -\frac{2}{5}$$

$$76. -3(x-2)^2 + 4(x+1)^2 < (x+3)^2 \quad R \parallel] -\infty, \frac{17}{14}[$$

$$-3x^2+12x-12+4x^2+8x+4 < x^2+6x+9$$

$$x^2+20x-8 < x^2+6x+9$$

$$20x-8 < 6x+9$$

$$20x-6x < 9+8$$

$$14x < 17$$

$$x < \frac{17}{14}$$

$$70. 5(4 + x) < 3(x + 4) - 6x \quad R \parallel] -\infty, -1[$$

$$20 + 5x < 3x + 12 - 6x$$

$$+5x - 3x + 6x < +12 - 20$$

$$8x < -8$$

$$x < -1$$

$$71. 7 - 4x < 3x - 6(x + 1) \quad R \parallel] 13, +\infty[$$

$$7 - 4x < 3x - 6x - 6$$

$$-4x + 3x < -7 - 6$$

$$-x < -13$$

$$x > 13$$

$$72. -14 < 3z - 6 < 4 \quad R \parallel] -3, 3[$$

$$-14 + 6 < 3z < 4 + 6$$

$$-8 < 3z < 10$$

$$\frac{-8}{3} < z < \frac{10}{3}$$

$$-3 < z < 3$$

$$73. 5x + 4 < 3x - 6(x + 1) \quad R \parallel] -\infty, -\frac{5}{4}[$$

$$5x + 4 < 3x - 6x - 6$$

$$5x + 3x < -4 - 6$$

$$8x < -10$$

$$x < \frac{-10}{8} = x < -\frac{5}{4}$$

$$77. (2x+1) + 5(x-4) \leq 2(x+3) \quad]-\infty, 5]$$

$$2x + 1 + 5x - 20 \leq 2x + 6$$

$$1 + 5x - 20 \leq 6$$

$$-19 + 5x \leq 6$$

$$5x \leq +19$$

$$5x \leq 25$$

$$x \leq \frac{25}{5} \quad x \leq 5$$

Observa el desarrollo de la siguiente desigualdad y
cunge el error cometido.

$$-5x + 8 > 16$$

$$-5x + 8 - 8 > 16 - 8$$

$$-5x > 8$$

$$x > \frac{8}{5}$$

$$-5x > 8$$

$$x > -\frac{8}{5}$$

incorrecto

respuesta: $x < -\frac{8}{5}$