

Encontrar los números críticos en las desigualdades

$$139. 3x^2 - 14x \leq -8$$

$$3x^2 - 14x + 8 \leq 0 \quad ||| \quad x = 4, x = \frac{2}{3}$$

$$(3x - 2)(x - 4)$$

$$3x - 2 = 0$$

$$3x = 2$$

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

$$x - 4 = 0$$

$$x = 4$$

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

$$140. \frac{1}{2} - x^2 + \frac{1}{6} \leq 0$$

$$-x^2 + \frac{1}{6}x + \frac{1}{2} \leq 0$$

$$x = \frac{2\sqrt{6}}{3}; x = -\frac{\sqrt{6}}{3}$$

$$||| \quad x = \frac{2\sqrt{6}}{3}; x = -\frac{\sqrt{6}}{3}$$

$$141. x \leq 6 - 2x^2$$

$$2x^2 + x - 6 \leq 0$$

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

$$x + 2 = 0$$

$$x = -2$$

$$2x = 3$$

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

$$||| \quad x = -2; x = \frac{3}{2}$$

$$||| \quad x = \left[-2, \frac{3}{2}\right]$$

$$142. (x-5)(x+4) \leq 0$$

$$x-5=0 \quad x+4=0$$

$$x=5$$

$$x=-4$$

$$\text{R}|| x=5; x=-4$$

$$143. \left(\frac{3-x}{2}\right)\left(\frac{4+5x}{5}\right) \geq 0$$

$$\frac{3-x}{2}=0$$

$$\frac{4+5x}{5}=0$$

$$\text{R}|| x=\frac{3}{2}; x=\frac{4}{25}$$

$$(-1)-x = -\frac{3}{2}(-1)$$

$$5x = \frac{4}{5}$$

$$x = \frac{4}{25}$$

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

• Notación de intervalos:

$$144. x^2 + 5x + 4 < 0$$

$$x^2 + 5x + 4 < 0$$

$$\text{R}|| x = -4, x = -1$$

$$(x+4)(x+1)$$

$$\underline{]-4, -1[}$$

$$x+4=0$$

$$x+1=0$$

$$x = -4$$

$$x = -1$$

$$145. 4x < -x^2 + 12$$

$$x-2=0$$

$$x+6=0$$

$$0 < -x^2 - 4x + 12 \quad (-1)$$

$$x=2$$

$$x=-6$$

$$0 < x^2 + 4x - 12$$

$$\text{R}|| \underline{]-6, 2[}$$

$$(x+6)(x-2)$$

$$47 \quad 800 \geq x^2 - 20x$$

$$x^2 - 20x - 800$$

$$(x - 40)(x + 20)$$

$$x - 40 = 0 \quad x + 20 = 0$$

$$x = 40 \quad x = -20$$

$$x = -20$$

$$R \parallel \underline{[-20, 40]}$$

$$148 \quad 2x < x^2 - 8$$

$$0 < x^2 - 2x - 8$$

$$(x - 4)(x + 2)$$

$$x - 4 = 0 \quad x + 2 = 0$$

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

$$R \parallel \underline{(-\infty, -2] \cup [4, \infty)}$$

$$149. \quad 2x + 35 < x^2$$

$$(-1) - x^2 + 2x + 35 < 0$$

$$x^2 - 2x - 35 < 0$$

$$(x - 7)(x + 5)$$

$$x = +7 \quad x = -5$$

$$R \parallel \underline{]-\infty, -5] \cup [7, \infty)}$$

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$$132. -2x^2 - x + 6 \leq 0$$

$$(-1) \cdot -2x^2 - x + 6 \leq 0$$

$$R1 \quad x = \frac{3}{2}; x = -2$$

$$2x^2 + x - 6 \leq 0$$

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

$$2x = 3$$

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

$$133. -5x^2 - 7x + 24 > 0$$

$$(-1) \cdot -5x^2 - 7x + 24$$

$$R1 \quad x = \frac{8}{5}; x = -3$$

$$5x^2 + 7x - 24 > 0$$

$$(5x-8)(x+3)$$

$$x = \frac{8}{5} \quad x = -3$$

$$134. -x^2 + 64 \leq 0$$

$$x^2 - 64$$

$$\sqrt{x^2} - \sqrt{8^2}$$

$$R1 \quad x = -8; x = 8$$

$$(x+8)(x-8)$$

$$135. -x^2 + 25 \leq 0$$

$$x^2 - 25$$

$$(x - 5)(x + 5)$$

$$R1 \quad x = 5, \quad x = -5$$

$$136. -x^2 + x + 4 \leq 0 \quad | \quad x \leq 7$$

$$(-1) - x^2 + x + 4 \leq 0$$

$$x - 1 + x - x - 4 \leq 0$$

$$R11 \quad \text{No Satisface}$$

$$137. -x^2 - 4x + 12 \leq 0$$

$$x^2 + 4x - 12 \leq 0$$

$$(x + 6)(x - 2) \leq 0$$

$$R11 \quad \text{No Satisface}$$

$$[-6, -2]$$

$$138. -x^2 - 12x - 12 < 0$$

$$x^2 + 12x + 12 < 0$$

$$(x^2 + 13x + 12) > 0$$

$$(x + 12)(x + 1) > 0$$

$$R11 \quad \text{No Satisface}$$