Topic 1

Solve the following problems in the real domain.

(1)
$$\frac{2x^2+5x+6}{x^2+10x} \leq 1$$

(2)
$$\frac{x-8}{x-5} \geq x$$

(3)
$$\Big||x+4|-|x-3|\Big| \geq 1$$

(4)
$$\frac{3x^2+15x+6}{x^2+10x} \leq 2$$

(5)
$$|6x-12| < 4|x|$$

(6)
$$|x-1|-|x+2| > x$$

(7)
$$(x+2)(x-2) \leq 2x-5$$

(8)
$$|x-2|+3 < |x|+|x+1|$$

(9)
$$\frac{x-3}{x+1} \geq 2$$

(10)
$$|x-1| > |x-3|+2$$

(11)
$$\frac{2x^2+1}{x^2+2x+2} < 1$$

(12)
$$\Big||x-1|-2\Big| < 1$$

(13)
$$(x-2)(x+3) \geq 4x-8$$

(14)
$$|x-1|+|x-3|+|x-5| = 4$$

(15)
$$|3x-6| < 2|x|\,.$$

(16)
$$\frac{2x+3}{x-1} \geq 1$$

(17)
$$|x-1|-|x+2| > x$$

(18)
$$\frac{x^2-11x+10}{x^2-7x+12} \geq 0$$

(19)
$$|x+3|+x \geq |2x-4|$$

(20)
$$\Big||x+2|-|x-2|\Big| \geq 1$$