Exercise: Solving Inequality

Find the solution set for each of the following inequities.

1. $\frac{x-1}{x+1} \leq 0$

   Ans: $(-1, 1]$

2. $\frac{-x^2-x}{2-x} \geq 0$

   Ans: $[-1, 0] \cup (2, \infty)$

3. $\frac{2x}{x-2} - \frac{3x}{x-4} \leq 1$

   Ans: $(-\infty, 2) \cup (4, \infty)$

4. $\frac{(2x^2+4x+7)(x-1)}{x^3-5x^2+x-5} \leq 0$

   Ans: $[1, 5)$

5. $\frac{x^2+8}{x^2+x+6} \geq 0$

   Ans: $(-\infty, \infty)$

6. $\frac{x^2-2x-4}{x^2-x-6} \geq 0$

   Ans: $(-\infty, -2) \cup [1 - \sqrt{5}, 3) \cup (1 + \sqrt{5}, \infty)$

7. $\frac{2x-x^2-3}{x-2x^2-1} \leq 1$

   Ans: $(-\infty, -2] \cup [1, \infty)$

8. $\frac{(-x^2+5x-7)(2x+1)}{x^4-1} \geq 0$

   Ans: $(-\infty, -1) \cup [-1/2, 1)$

9. $\frac{x^2-1}{2-3x+x^2} > \frac{1}{x}$

   Ans: $(-\infty, 0) \cup (2, \infty)$

10. $\frac{x^4+6x^2}{1-2x} \leq x^2$

    Ans: $\{0\} \cup (1/2, \infty)$

11. $\frac{|1-x|}{x^3+2x^2+5x+4} \leq 0$

    Ans: $(-\infty, -1) \cup \{1\}$