Calculus Review Worksheet

Find intervals of x for which each of the following curves is increasing, decreasing, concave upward, and concave downward. Sketch a graph of each showing all max./min. points and all inflection points. Show all asymptotes where appropriate.

(1)
$$y = -x^3 - 6x^2 - 9x - 4$$

(2)
$$y = x^4 - 6x^2 + 8x - 3$$

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

(4)
$$y = \frac{x}{x^2 + 1}$$

(5)
$$y = \frac{x^2 + x - 1}{x - 1}$$

(6)
$$y = \frac{x^3 + x + 2}{x}$$

(7)
$$y = 9(x^2 - 1)^{\frac{2}{3}}$$

(8)
$$y = \frac{x^3}{x^2 - 3}$$