E - Identifying Key Features of Graphs of Rational Functions WS#1

Identify the vertical asymptote(s), x-intercept(s), and horizontal asymptote(s) of each rational function.

1) $f(x) = \dfrac{x^3 + 7x^2 + 12x}{4x^2 + 4x - 8}$

2) $f(x) = \dfrac{3}{x^2 - 2x - 3}$

3) $f(x) = \dfrac{x^3 - 4x^2 + 3x}{-3x^2 + 3x + 6}$

4) $f(x) = -\dfrac{1}{x^2 - 9}$

5) $f(x) = \dfrac{x^2 - 2x}{4x^2 + 4x - 8}$

6) $f(x) = \dfrac{x^3 + x^2 - 12x}{-2x^2 - 2x + 4}$

7) $f(x) = \dfrac{x + 4}{x - 3}$

8) $f(x) = \dfrac{x^3 + 3x^2 + 2x}{-4x^2 + 4x + 8}$

9) $f(x) = \dfrac{x^2 - 5x + 6}{-4x - 4}$

10) $f(x) = \dfrac{x^2 + 6x + 8}{3x^2 - 3x - 6}$

11) $f(x) = \dfrac{x^2 - 4}{-4x - 12}$

12) $f(x) = \dfrac{x^3 - 16x}{-3x^2 + 9x}$

13) $f(x) = \dfrac{-x^2 + 4}{x^2 + 6x + 8}$

14) $f(x) = \dfrac{x^2 - 3x + 2}{-4x^2 + 12x}$

15) $f(x) = \dfrac{1}{x^2 - x - 6}$

16) $f(x) = \dfrac{x^2 + 5x + 4}{2x^2 - 2x - 12}$