HW 18 Solutions:

4.6.1 $f(x) = \frac{x}{x^2-1} = \frac{x}{(x+1)(x-1)}$

a) $D(f) = (-\infty,-1) \cup (-1,1) \cup (1,\infty)$

b.) $(0,0)$ (3)

c.) $(0,0)$

4.6.5 $f(x) = \frac{x^2+x-12}{x^2+x} = \frac{(x+4)(x-3)}{x(x+1)}$

a.) $D(f) = (-\infty,-1) \cup (-1,0) \cup (0,\infty)$ (3)

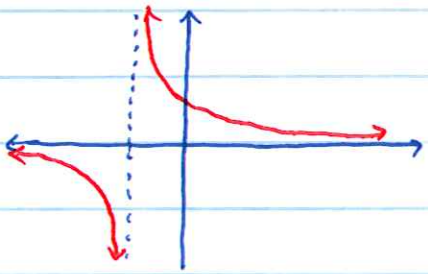
b.) No y intercept ($x=0$ is an asymptote)

c.) $(-4,0)$, $(3,0)$

4.6.7

$f(x) = \frac{3}{x+1}$ vertical asymptote: $x=-1$ (1)

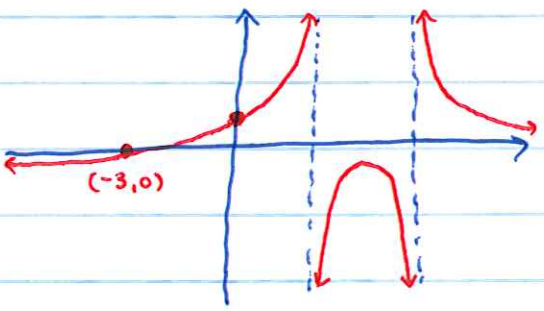
Extra points:



4.6.10

$f(x) = \frac{x+3}{x^2-6x+8} = \frac{x+3}{(x-2)(x-4)}$ vertical asymptotes are $x=2$, $x=4$ (2)

Extra points:



4.6.13 $f(x) = \dfrac{3}{x+1}$ $y=0$ ①

4.6.16 $f(x) = \dfrac{2x^3 - x^2 + 1}{x^2 + 1}$ No horizontal asymptotes ①

4.6.17 $f(x) = \dfrac{3x^2 - 4x^3}{7x^3 + x^2 - x + 1}$ $y = \dfrac{-4}{7}$ ①