

c) For which value(s) of x does the limit not exist? $x = -4, -1, 1, 5$

2. State all Holes and Asymptotes for a and b and then write the equation for c and d :

a) $f(x) = \frac{9x^2 - x}{x^3 - 9x}$

$$f(x) = \frac{x(9x-1)}{x(x-3)(x+3)}$$

HOLE: $(0, 1/9)$

VA: $x = \pm 3$

HA: $y = 0$

SA:

b) $g(x) = \frac{3x^2 - 13x - 10}{x^2 - 4x - 5}$

$$f(x) = \frac{(3x+2)(x-5)}{(x+1)(x-5)}$$

HOLE: $(5, 17/6)$

VA: $x = -1$

HA: $y = 3$

SA:

c) Hole(s): $x = 0, 3$

VA: $x = -1$

HA: $y = 0$

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

$$x^3 - 2x^2 - 3x$$

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

d) Hole(s): $x = -2$

VA: $x = 3, -3$

HA: $y = -1/2$

$$\frac{-x^2(x+2)}{2(x^2 - 9)(x+2)}$$

$$2(x^3 + 2x^2 - 9x - 18)$$

$$f(x) = \frac{-x^3 - 2x^2}{2x^3 + 4x^2 - 18x - 36}$$