

1. Find all points of discontinuity and state if they are holes or vertical asymptotes.

$$\frac{(x+2)(x-2)}{2x^3 - 6x^2 - 20x}$$

$$2x(x^2 - 3x - 10) = 2x(x-5)(x+2)$$

5	-2	0
VA	hole	VA

2. Find the equation of the Horizontal Asymptote, if any.

a. $y = \frac{6x^3 - x^2 + 9}{2x^2 - 12}$ b. $y = \frac{7x^2 + 10x - 4}{x^2 + 5x + 2}$

NO HA

$$y = 7$$

c. $y = \frac{8x + 15}{2x^2 - 5}$

$$y = 0$$

3. Simplify. State restrictions on the variable.

$$\frac{x^2 + x - 12}{4x^4 - 36x^2} \div \frac{x^2 + 10x + 24}{6x^2 + 18x}$$

$$\frac{(x+4)(x-3)}{4x^2(x+3)(x-3)}$$

$$\frac{6x(x+3)}{(x+b)(x+4)}$$

$$\frac{3}{2x(x+b)}$$

$x \neq 0, -b, -4, -3$