

Chapter 5 (rationals):

BOBO **BOTN** **EATS DC** (use to determine HA)

$$y = \frac{5}{x-2}$$

$$y = \frac{x^2}{x-2}$$

$$y = \frac{5x-1}{2x-1}$$

$$y = \frac{x^2 - 4}{x-2}$$

$$\text{HA: } y=0$$

none

$$y = \frac{5}{2}$$

$$y = x+2$$

Hole: $x=2$

checking extraneous solutions

$$\frac{6}{x-3} = \frac{8x^2}{x^2-9} - \frac{4x}{x+3}$$

$$x = \frac{3}{2}, \cancel{\frac{3}{2}}$$

LOF and transformations

even/odd/symmetry

average rate of change (slope)

$$f(x) = x^2 - 3 \quad [1, 3]$$
$$f(1) = -2$$
$$f(3) = 6$$
$$\frac{y_2 - y_1}{x_2 - x_1} = \frac{f(3) - f(1)}{3 - 1}$$
$$= \frac{6 - (-2)}{2} = 4$$

Systems and Optimization

2x2 systems (equations and inequalities)

3x3 systems and word problems

Cramer's Rule

Optimization (feasible region)

Sequences and Series

Arithmetic rule

Arithmetic finite sum

like linear
"d"

Geometric rule

Geometric finite sum

Geometric infinite sum

(only valid when $|r| < 1$)

like exponentials
"r"

Conics

Parabolas

Circles

Ellipses

Hyperbolas

*non-linear
systems*

Inequalities

linear

absolute value

polynomial

rational

exponential

logs (must check domain)

Trigonometry

unit circle

formulas (arc length and area of sector)

evaluate

sketch sine and cosine

coterminal

reference angles