



Chapter 5 Polynomial & Rational Functions

Sections:

5.1 Graphing Polynomial Functions

Video 1

Are the following polynomial functions? If so, state the degree of the function

a) $f(x) = 7x^3 + 2x^4$

b) $g(x) = x^2 - \frac{5}{x}$

c) $h(x) = 2(x-3)^2(x^2+2)$

Video 2

Graph each function:

a) $f(x) = 2(x-1)^4 + 3$

b) $g(x) = 2 - (x-3)^5$

Video 3

Form a polynomial with the given zeros:

a) Zeros: -3,1,2,5 and degree 4

b) Zeros: -1 multiplicity 2, 5 multiplicity 1, degree 3

Video 4

For each of the following:

a) $f(x) = (x - \sqrt{2})^2 (x + 2)^4$

b) $g(x) = 2(x-3)(x^2+2)^3$

-List the real zeros

-Does it cross or touch the x axis at each intercept

-State the max # of turning points

-Determine the end behavior of the graph

Video 5

Graph each of the following:

- a) $f(x) = x^2(x+3)(x-1)$
- b) $f(x) = (x-1)^2(x+2)(x+4)$

5.2 Rational Functions

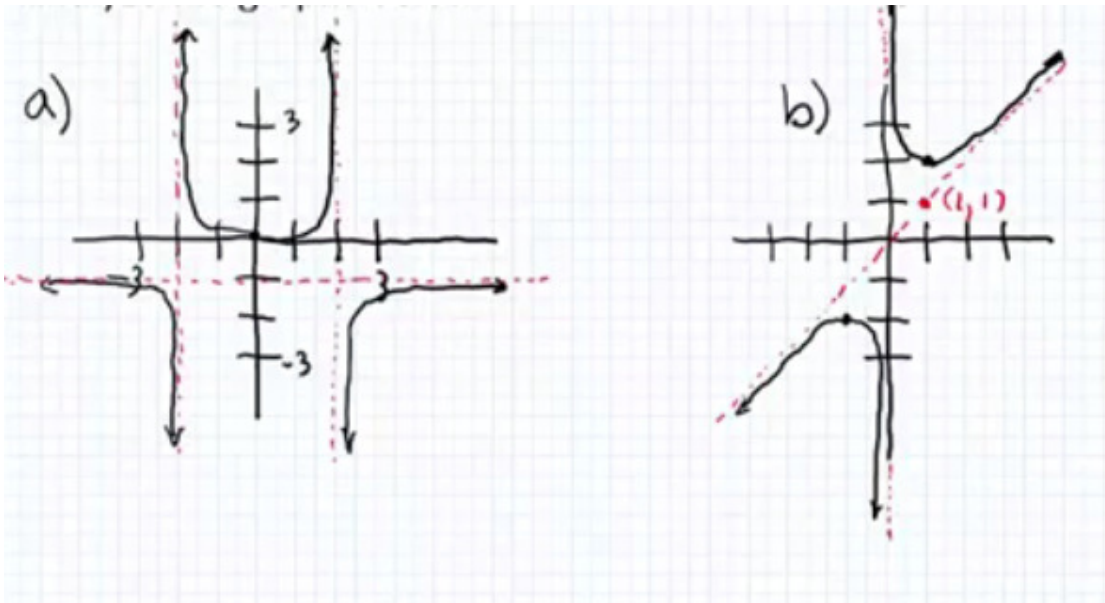
Video 1

Find the domain of each function:

- a) $F(x) = \frac{2x(x-1)}{2x^2 - x - 3}$
- b) $R(x) = \frac{3(x^2 - x - 6)}{4(x^2 - 16)}$
- c) $H(x) = \frac{3x^2 + x}{x^2 + 9}$

Video 2

Analyze the graphs below:



Video 3

Graph each of the functions:

a) $F(x) = 1 + \frac{1}{x}$

b) $G(x) = 2 + \frac{2}{(x-1)^2}$

c) $R(x) = \frac{x^2 - 1}{x^2}$

Video 4

Find the asymptotes of the functions:

a) $P(x) = \frac{4x^3}{x^4 - 1}$

b) $Q(x) = \frac{2x^2 - x - 6}{3x^2 - 5x - 8}$

Video 5

Find the asymptotes of the functions:

a) $G(x) = \frac{x^3 + 1}{x^2 - 9x + 14}$

b) $F(x) = \frac{x^4 - 81}{x^2 - x}$

5.3 Graphing Rational Functions

Video 1

Graph the function: $R(x) = \frac{4x^2 - 9x - 9}{2x^2 - x - 15}$

Video 2

Graph the function: $H(x) = \frac{x^2 + x - 2}{x + 1}$

Video 3

Graph the function: $G(x) = \frac{x^2 - x - 6}{x^2 - 1}$

5.4 Solving Rational Inequalities

Video 1

Solve the inequality:

a) $(x-3)(x+2)^2 > 0$

b) $x^3 > 9x^2$

Video 2

Solve the inequality:

a) $2x^3 + 5x^2 - 12x < 0$

b) $x^3 < -8$

Video 3

Solve the inequality:

a) $\frac{3x+2}{x-3} \leq 0$

b) $\frac{(x+5)^2}{x^2-9} \geq 0$

Video 4

Solve the inequality:

a) $\frac{4}{x-5} > \frac{3}{x+2}$

b) $\frac{(1-x)^3(x+3)}{x^3-8} < 0$