

POLYNOMIAL, RATIONAL, + RADICAL FUNCTIONS

$$f(x) = -2x^1 + 3x^2 + 7x - 1$$

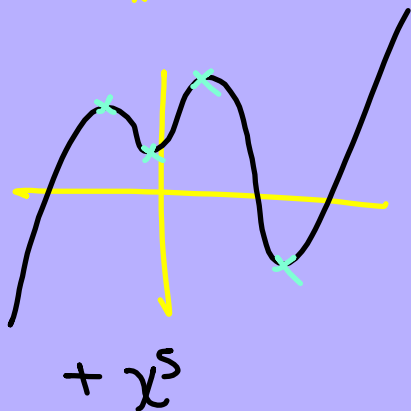
even

$$\lim_{x \rightarrow -\infty} f(x) = -\infty$$

$$\lim_{x \rightarrow \infty} f(x) = -\infty$$

$$f(x) = -7x^3 + 2x^2 + 4x^5 + 1$$

$$\lim_{x \rightarrow -\infty} f(x) = \infty \quad \lim_{x \rightarrow \infty} f(x) = -\infty$$



$$3/a) \quad x^3 - x^2 - 34x - 56 = 0 \quad \frac{\pm 1 \pm 2 \pm 4 \pm 7 \pm 8 \pm 14 \pm 28 \pm 56}{\cdot}$$

$$\underline{x^3 - x^2 - 34x - 56} \mid x = -2 \quad 0$$

$$\begin{array}{r|rrrr} -2 & 1 & -1 & -34 & -56 \\ x = -2 + & & & & \\ \downarrow & \nearrow -2 & \nearrow 6 & \nearrow 56 & \\ & 1 & -3 & -28 & 0 \end{array}$$

$$(x+2)(x^2 - 3x - 28)$$

$$(x+2)(x-7)(x+4)$$

$$\boxed{x = -2, 7, -4}$$

6 (a-b) = Multiply by the common denom +
 * check for excluded values!
 eliminate all denoms.

6 (c-d) <, > Must Keep denominators!

$$\frac{3}{x-2} \leq \frac{4}{x+3}$$

$$\frac{(x+3)3}{(x+3)(x-2)} - \frac{4(x-2)}{(x+3)(x-2)} \leq 0$$

$$\frac{3x+9-4x+8}{(x+3)(x-2)} \leq 0$$

$$\frac{-x+17}{(x+3)(x-2)} \leq 0$$

- 1) Set < 0 or > 0
- 2) Common denom
- 3) test pts

$$0 \leq \underline{\hspace{2cm}}$$

$$-x+17=0$$

$$17=x$$



$$(-3, 2) \cup [17, \infty)$$

Partial Fractions

$$7(b) \quad \frac{\quad}{\text{grouping}}$$

$$7(d) \quad \frac{2x^4 - 3}{(2x^2)(x^2)}$$

Simplify

$$\frac{6(2x^2-1)^3(x+5)^{-1/4} - 3(2x^2-1)^2 4x \cdot (x+5)^{3/4+1/4}}{(x+5)^{3/4})^2}$$

$$\frac{3(2x^2-1)^2(x+5)^{-1/4} [2(2x^2-1) - 4x(x+5)]}{(x+5)^{6/4+1/4}}$$

$$\frac{3(2x^2-1)^2 [4x^2 - 2 - 4x^2 - 20x]}{(x+5)^{7/4}}$$

$$\frac{3(2x^2-1)^2 [-2 - 20x]}{(x+5)^{7/4}} = -\frac{6(2x^2-1)^2(1+10x)}{(x+5)^{7/4}}$$