Then, want to find
$$\lim_{x\to\infty} \frac{x^3+4x-7}{7x^2-x+1}$$

$$\frac{1.10}{x.900} \frac{x^3 + 4x - 7}{7x^2 - x + 1}$$

$$= \frac{11}{x^{2}} \frac{1 + \frac{1}{x^{2}} - \frac{7}{x^{3}}}{\frac{7}{x} - \frac{1}{x^{2}} + \frac{1}{x^{3}}}$$

Need to show

$$X>2 \Rightarrow [+\frac{4}{x^2} - \frac{7}{x^3} > 0]$$
 and $\lim_{x \to \infty} [+\frac{4}{x^2} - \frac{7}{x^3} =]$

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1im 1+4-7

= 13hy 1+4x2-7x3

= 1+ lih 4x2- lih 7x3

First, Show X>2 => 1+ 12-12>0

ASSUME BY Contradiction

X72= 1+ 4-7=0.

 $1 + \frac{4}{X^2} - \frac{7}{x^3} \le 0$

X3+4X-7=0 BUT X22,50

 $2^{3}+4(2)-7 < x^{3}-4x-7 \leq 0$

8+1<x3-4X-750 contradiction.

Then, want to find lim x3+4x-7 1:10 $X^3 + 4X - 7$ X - 3 $(-2)^3 + (-2)^3 +$ $= \frac{11}{1 + \frac{1}{x^2} - \frac{7}{x^3}}$ $= \frac{1}{x} + \frac{1}{x^2} + \frac{7}{x^3}$ Need to show $X>2 \Rightarrow 1 + \frac{4}{x^2} - \frac{7}{x^3} > 0$ and $\lim_{x \to \infty} 1 + \frac{4}{x^2} - \frac{7}{x^3} = 1$ X>0 => \frac{7}{\chi} = \frac{1}{\chi^2 + \frac{1}{\chi^2}} > 0 \quad \quad \text{tim } \frac{7}{\chi^2 + \frac{1}{\chi^2}} = 0. First, Show X>2 => 1+ 1/2-12>0 ASSUME BY CONTradiction: 1/2 /3 X72= 1+4-750. = 1744 1+ 4x2-7x3 then, 1+ \frac{1}{x^2} - \frac{7}{x^3} \le 0 = 1+ 1th 4x2 lin 7x3 x3+4x-7=0 But x=2,50 $2^{3}+4(2)-7 < x^{3}-4x-7 \leq 0$ 8+1<x3-4X-7 50 contradiction.