

17720_1
Word count: 0

$$\lim_{x \rightarrow -\infty} \frac{x^4 - 5x^2 + x^3}{x^2 + 4x^5}$$

$$\lim_{x \rightarrow -\infty} \frac{x^5 \left(\frac{1}{x} - 5x^2 + \frac{1}{x^2} \right)}{x^5 \left(\frac{1}{x^3} + \frac{2}{x^3} + 4 \right)} = +\infty$$

E' sbagliato il segno.

voto 4

17720_1
Word count: 0

(es 1)
 Calcolare il limite:

$$\lim_{x \rightarrow \infty} \frac{x^4 - 5x^2 + x^3}{x + 2 + 4x^5}$$

di grado di una fr. indeterminata $\frac{\infty}{\infty}$
 di grado di una fr. indeterminata $\frac{\infty}{\infty}$

$$\frac{x^4 - 5x^2 + x^3}{x + 2 + 4x^5} = x^2 \left(\frac{1}{x^3} - 5 + \frac{1}{x^4} \right) = \frac{x^2}{x^5} \left(\frac{1}{x^4} + \frac{2}{x^5} + 4 \right)$$

$$\lim_{x \rightarrow \infty} \frac{x^2}{x^5} \left(\frac{1}{x^4} + \frac{2}{x^5} + 4 \right) = \frac{\infty}{\infty} \left(\frac{0}{\infty} + \frac{0}{\infty} + 4 \right) = \frac{\infty}{\infty} \cdot 4 = -\infty$$

Quindi $\lim_{x \rightarrow \infty} \frac{x^4 - 5x^2 + x^3}{x + 2 + 4x^5} = -\infty$

$$\lim_{x \rightarrow \infty} \frac{x^4 - 5x^2 + x^3}{x + 2 + 4x^5} = -\infty$$

voto 5

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CALCOLARE IL LIMITE

$$\lim_{x \rightarrow -\infty} \frac{x^4 - 5x^2 + x^3}{x + 2 + 4x^5} = \lim_{x \rightarrow -\infty} \frac{x^{\frac{2}{5}} \left(\frac{1}{x^3} - 5 + \frac{1}{x^4} \right)}{x^5 \left(\frac{1}{x^4} + \frac{2}{x^5} + 4 \right)}$$

$$= \lim_{x \rightarrow -\infty} -\frac{5}{4} x^2 = -\infty$$

voto 5

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Handwritten mathematical work on grid paper showing the limit of a rational function as $x \rightarrow -\infty$.

The first line shows the limit expression:

$$\lim_{x \rightarrow -\infty} \frac{x^4 - 5x^2 + x^3}{x + 2 + 4x^5}$$

The second line shows the result of dividing the numerator and denominator by x^5 :

$$\lim_{x \rightarrow -\infty} \frac{x \left(\frac{x}{x^3} - 5 + \frac{x}{x^4} \right)}{x \left(1 + \frac{2}{x} + 4x^4 \right)} = \frac{-\infty}{-\infty} = +\infty$$

Red circles highlight the 0 in the numerator and the $-\infty$ in the denominator of the second expression. Red arrows point from the 0 in the numerator to the 0 in the denominator of the second expression.

voto 1

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$$\begin{aligned} & \lim_{x \rightarrow -\infty} \frac{x^4 - 5x^2 + x^3}{x + 2 + 4x^5} = \\ & = \lim_{x \rightarrow -\infty} \frac{x^2 \left(\frac{x^4}{x^2} - 5 + \frac{x^3}{x^2} \right)}{x^5 \left(\frac{x}{x^5} + \frac{2}{x^5} + 4 \right)} = \\ & = \lim_{x \rightarrow -\infty} \frac{-5x^2}{4x} = \frac{+\infty^2}{-\infty} = -\infty \end{aligned}$$

voto 4

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① CALCOLARE I LIMITI

$$\lim_{x \rightarrow -\infty} \frac{x^4 - 5x^2 + x^3}{x + 2 + 4x^5} =$$

$$\lim_{x \rightarrow +\infty} \frac{x^3 (1 - 5x^{-2} + 1/x)}{x^5 (1/x^4 + 2/x^5 + 4)} =$$

$$\lim_{x \rightarrow +\infty} \frac{1/x \cdot (1 - 5x^{-2} + 1/x^2)}{x^5 (1/x^4 + 2/x^5 + 4)} =$$

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

$$\frac{1 - 5x^{-2} + 1/x^2}{x + 2 + 4x^5} =$$

$$\frac{1 - 0 + 0}{5} =$$

$$\frac{1}{5}$$

voto 5

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$$\lim_{x \rightarrow -\infty} \frac{x^4 - 5x^2 + x^3}{x + 2 + 4x^5} \Rightarrow$$

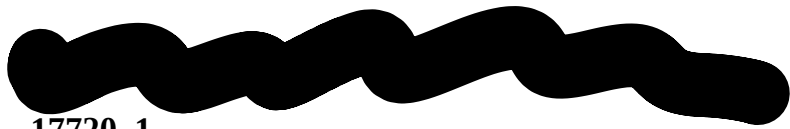
$$\Rightarrow \lim_{x \rightarrow -\infty} \left(\frac{x^5 \left(\frac{1}{x} - 5x^2 + \frac{1}{x^2} \right)}{x^5 \left(\frac{1}{x^4} + \frac{2}{x^5} + 4 \right)} \right) \Rightarrow$$

$$\Rightarrow \lim_{x \rightarrow -\infty} \left(\frac{1}{x} - 5x^2 + \frac{1}{x^2} \right) = (-\infty)$$

$$\lim_{x \rightarrow -\infty} \left(\frac{1}{x^4} + \frac{2}{x^5} + 4 \right) = 4 \Rightarrow$$

$$\Rightarrow \frac{-\infty}{4} = (-\infty)$$

voto 5

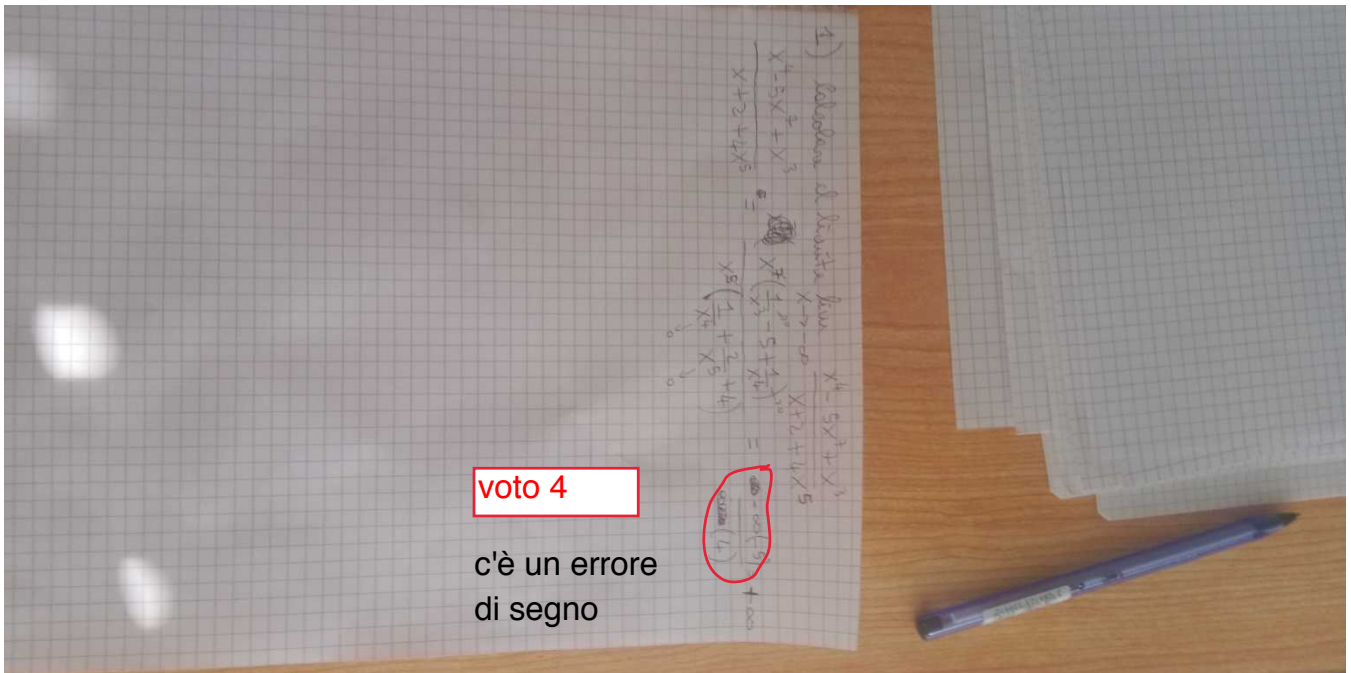
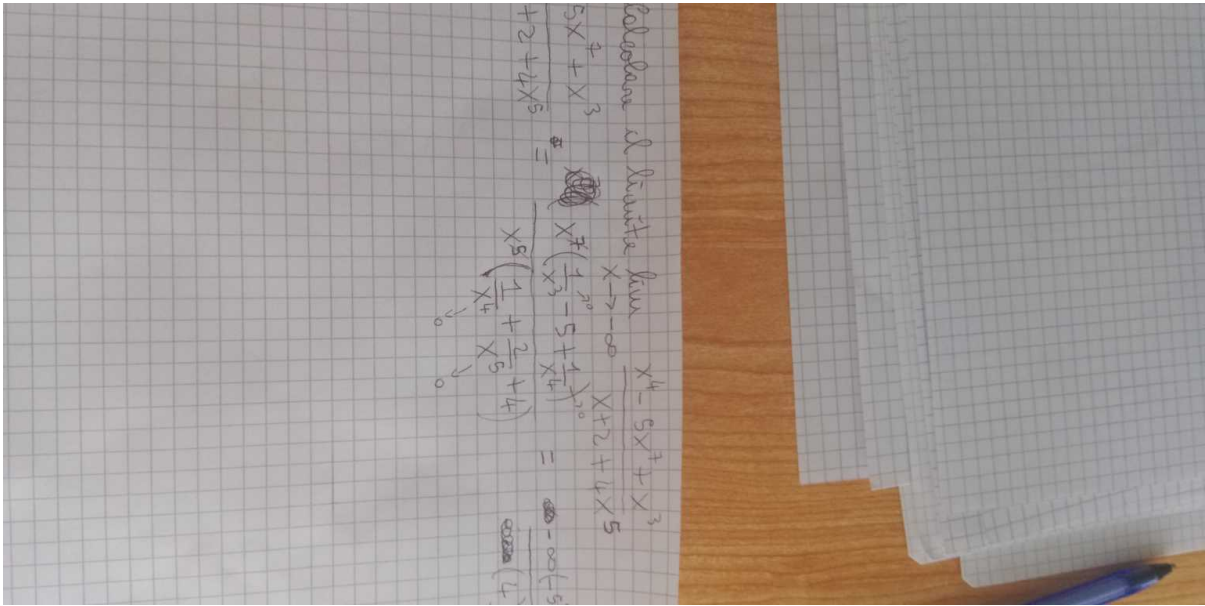


2020-07-17

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voto 4

c'è un errore di segno

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$$\lim_{x \rightarrow -\infty} \frac{x^4 - 5x^7 + x^3}{x + 2 + 4x^5}$$

$$\lim_{x \rightarrow -\infty} \frac{x^7 \left(\frac{1}{x^3} - 5 + \frac{1}{x^4} \right)}{x^5 \left(\frac{1}{x^4} + \frac{2}{x^5} + 4 \right)}$$

Voto 1

$$\lim_{x \rightarrow -\infty} -\frac{5}{4}$$

No. al numeratore ha x^7
mentre al denominatore x^5 ...
Quindi non può scrivere che il limite
è una costante

Il risultato è

$$-\frac{5}{4}$$

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Esercizio 1

calcolare il limite $\lim_{x \rightarrow -\infty} \frac{x^4 - 5x^2 + x^3}{x^2 + 2 + 4x^5}$

$$\lim_{x \rightarrow -\infty} \frac{x^4 \left(\frac{x^4}{x^4} - 5 + \frac{x^3}{x^4} \right)}{x^5 \left(\frac{x^2}{x^5} + \frac{2}{x^5} + 4 \right)} \rightarrow$$

$$\lim_{x \rightarrow -\infty} \frac{x^4 \left(\frac{1}{x^3} - 5 + \frac{1}{x} \right)}{x^5 \left(\frac{1}{x^3} + \frac{2}{x^5} + 4 \right)} \rightarrow \lim_{x \rightarrow -\infty} \frac{x^2(-5)}{+4} \rightarrow$$

$$\lim_{x \rightarrow -\infty} -\frac{5x^2}{4} = -\frac{5}{4}(-\infty)^2 = -\infty$$

voto 5

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1) GIUSTA

$$\lim_{x \rightarrow -\infty} \frac{x^4 - 5x^2 + x^3}{x + 2 + 4x^5} = \lim_{x \rightarrow -\infty} \frac{x^4 \left(1 - \frac{5x^2}{x^4} + \frac{x^3}{x^4}\right)}{x^5 \left(\frac{1}{x^4} + \frac{2}{x^5} + \frac{4}{x^5}\right)}$$

$$= \lim_{x \rightarrow -\infty} \frac{1}{x \cdot (4 + x^4)} = \frac{1}{-\infty} = 0$$

NO!!

OP

$$\lim_{x \rightarrow -\infty} \frac{x^4 - 5x^2 + x^3}{x + 2 + 4x^5} = \lim_{x \rightarrow -\infty} \frac{x^4 \left(1 - \frac{5x^2}{x^4} + \frac{x^3}{x^4}\right)}{x^5 \left(\frac{1}{x^4} + \frac{2}{x^5} + \frac{4}{x^5}\right)} = \lim_{x \rightarrow -\infty} \frac{x^4 \left(1 - \frac{5x^2}{x^4} + \frac{x^3}{x^4}\right)}{x^5 \left(4 + \frac{x}{x^5} + \frac{2}{x^5}\right)} = \lim_{x \rightarrow -\infty} \frac{1}{x \cdot (4 + x^4)} = \frac{1}{-\infty} = 0$$

GIUSTA

$$\lim_{x \rightarrow -\infty} \frac{x^4 - 5x^2 + x^3}{x + 2 + 4x^5} = \lim_{x \rightarrow -\infty} \frac{1}{x \cdot (4 + x^4)} = \frac{1}{-\infty} = 0$$

voto 0.5

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The image shows handwritten mathematical work on graph paper. At the top, there are several lines of algebraic manipulation, including a fraction $\frac{5x^2(-1)}{21}$ and a more complex fraction with terms like $\frac{1}{x^3}$, $\frac{1}{x^4}$, and $\frac{2}{x^5}$. Below this, there is a circled equals sign (=) and the text "voto 3" in a red box. Further down, there is a limit calculation: $\lim_{x \rightarrow -\infty} \frac{x^4 - 5x^3 + x^2 + 2 + hx^5}{x}$, which is followed by the result $= -5 \frac{(\infty)}{4} = -\infty$. The work is written in black ink on a grid background.

L'esercizio è scritto molto male. Deve mantenere il simbolo del limite altrimenti quelle che scrive non sono uguaglianze.

