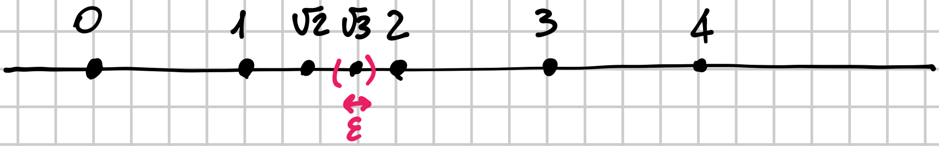
22/10/2020

$\mathbb{N} = \{0, 1, 2, 3, \dots\}$

65 $A = \{x : x = \sqrt{n}, n \in \mathbb{N}\} =$

$$= \{0, 1, \sqrt{2}, \sqrt{3}, 2, \sqrt{5}, \sqrt{6}, \sqrt{7}, 2\sqrt{2}, 3, \dots\} \subseteq \mathbb{R}$$

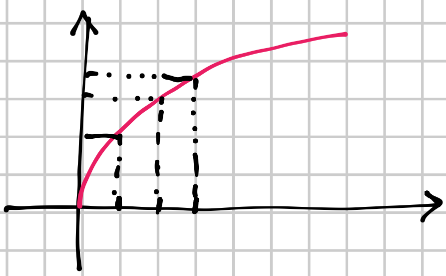


Ogni elemento di A è un punto isolato

Ad es. $\sqrt{3}$ è un punto isolato perché

esiste un intorno di $\sqrt{3}$ che non contiene altri elementi di A oltre a $\sqrt{3}$

$$I = (\sqrt{3} - \varepsilon, \sqrt{3} + \varepsilon) \quad \text{dove } \varepsilon < \min\{|\sqrt{3} - \sqrt{2}|, |\sqrt{3} - 2|\}$$



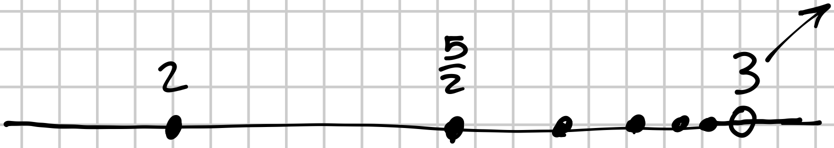
A non ha punti di accumulazione

78 $D = \left\{x: x = 3 - \frac{1}{n}, n \in \mathbb{N} - \{0\}\right\}, x_0 = 3.$

$$D = \left\{3-1,\ 3-\frac{1}{2},\ 3-\frac{1}{3},\ 3-\frac{1}{4}, \dots\right\} =$$

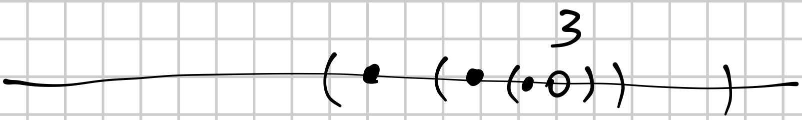
$$= \left\{2, \frac{5}{2}, \frac{8}{3}, \frac{11}{4}, \dots\right\}$$

$3 \notin D$



3 è di accumulazione per D

Per mostrare che 3 è di accumulazione per D, prendo un intorno <u>qualsiasi</u> di 3 e faccio vedere che questo intorno contiene almeno un punto di D (se ne ha uno, ne ha infiniti)



Prendo $]3-\varepsilon, 3+\varepsilon[$ quale elemento di D sta in questo intorno? RISPOSTA: uno che abbia $\frac{1}{n} < \varepsilon$

LEGGI IL GRAFICO Deduci i limiti indicati osservando le figure.

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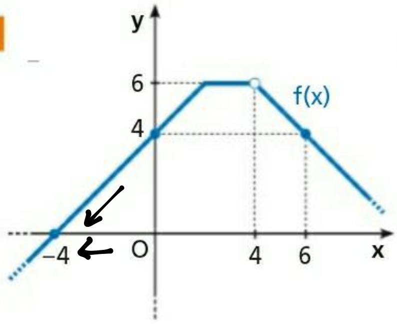

$\lim_{x\to-4} f(x)=0$ $\quad\lim_{x\to0} f(x)=4$

$\lim_{x\to4} f(x)=6$ $\quad\lim_{x\to6} f(x)=4$

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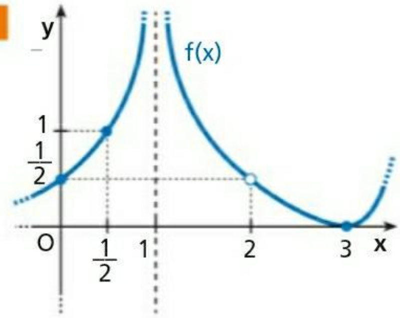

$\lim_{x\to0} f(x)=\frac{1}{2}$ $\quad\lim_{x\to3} f(x)=0$

$\lim_{x\to2} f(x)=\frac{1}{2}$ $\quad\lim_{x\to\frac{1}{2}} f(x)=1$

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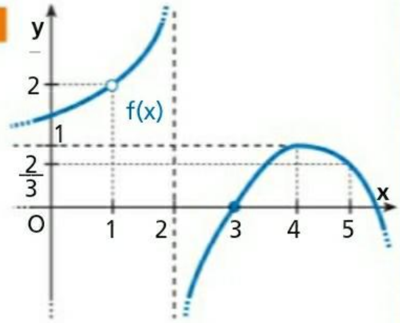
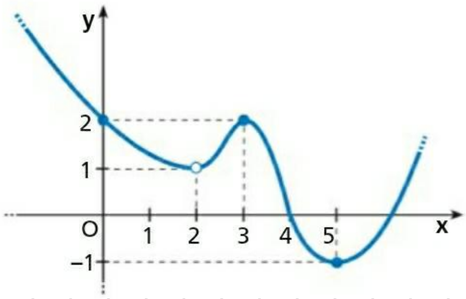


$\lim_{x\to1} f(x)=2$ $\quad\lim_{x\to3} f(x)=0$

$\lim_{x\to4} f(x)=1$ $\quad\lim_{x\to5} f(x)=\frac{2}{3}$

151 **VERO O FALSO?** Data la funzione $f(x)$ rappresentata in figura, puoi dire che:



a. $\lim_{x\to3} f(x)=2^-$. ~~V~~ F

b. $\lim_{x\to2} f(x)=1^+$. ~~V~~ F

c. $\lim_{x\to0} f(x)=2^+$. V ~~F~~

d. $\lim_{x\to5} f(x)=-1^-$. V ~~F~~

$\lim_{x\to5} f(x)=-1^+$

$\lim_{x\to0^+} f(x)=2^-$

$\lim_{x\to0^-} f(x)=2^+$

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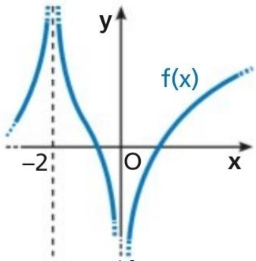

$\lim_{x\to-2^-} f(x)=+\infty$; $\quad\lim_{x\to0^-} f(x)=-\infty$

$\lim_{x\to-2^+} f(x)=+\infty$ $\quad\lim_{x\to0^+} f(x)=-\infty$

$\lim_{x\to-2} f(x)=+\infty$

$\lim_{x\to0} f(x)=-\infty$

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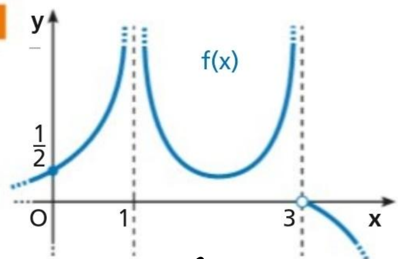

$\lim_{x\to1^-} f(x)=+\infty$; $\quad\lim_{x\to3^-} f(x)=+\infty$

$\lim_{x\to1^+} f(x)=+\infty$; $\quad\lim_{x\to3^+} f(x)=0$

$\lim_{x\to3} f(x)$ NON ESISTE

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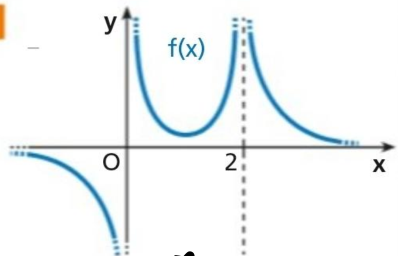

$\lim_{x\to0^-} f(x)=-\infty$; $\quad\lim_{x\to2^-} f(x)=+\infty$

$\lim_{x\to0^+} f(x)=+\infty$; $\quad\lim_{x\to2^+} f(x)=+\infty$

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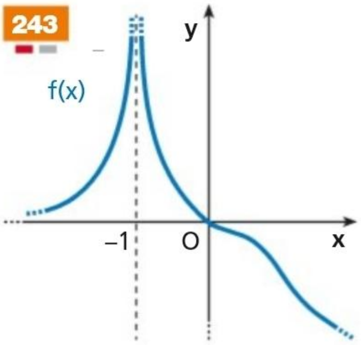

$x = -1$ ASINTOTO VERTICALE

$$\lim_{x \to -1} f(x) = +\infty$$

$$\lim_{x \to -1^{\pm}} f(x) = +\infty$$

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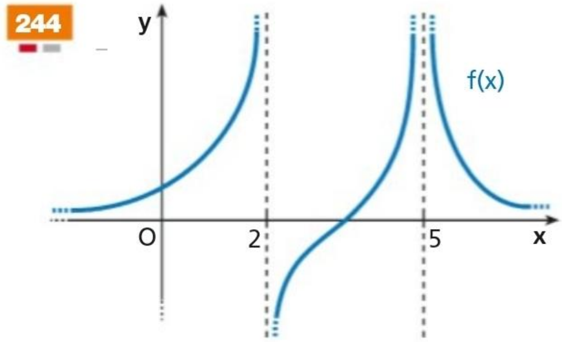

$x = 2$ $\qquad$ $x = 5$

$$\lim_{x \to 2^-} f(x) = +\infty$$

$$\lim_{x \to 2^+} f(x) = -\infty$$

$$\left[\lim_{x \to 2} f(x) = \infty\right]$$

$$\lim_{x \to 5} f(x) = +\infty$$

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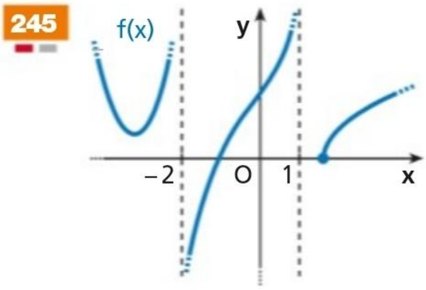

$x = -2$ $\qquad$ $x = 1$

$$\lim_{x \to -2^-} f(x) = +\infty$$

$$\lim_{x \to -2^+} f(x) = -\infty$$

$$\lim_{x \to 1^-} f(x) = +\infty$$