

Introdução ao Cálculo - 2ª Verificação - 13/11/80

NOME _____ N° _____

①

Usando a definição, ache a derivada no ponto $x=2$ da função $f(x) = \frac{1}{\sqrt{x+3}}$

②

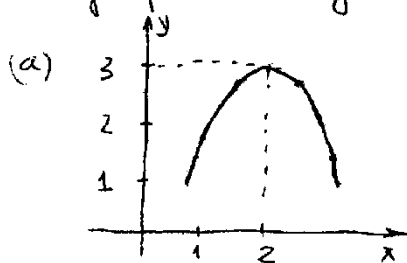
Calcular:

(a) $\lim_{x \rightarrow 3^-} \left(\frac{1}{3-x} \right) = \dots\dots$ (b) $\lim_{x \rightarrow -\infty} \left(\frac{1}{x^4} \right) = \dots\dots$ (c) $\lim_{x \rightarrow -\infty} \left(x^5 \right) = \dots\dots$

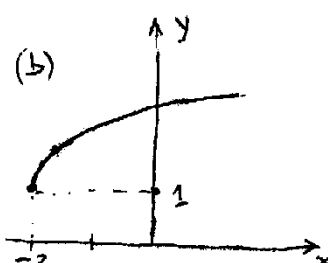
(d) $\lim_{x \rightarrow 1^+} \left(\frac{1}{(x-1)^2} \right) = \dots\dots$ (e) $\lim_{x \rightarrow 0^-} \left(\frac{1}{x^3} \right) = \dots\dots$ (f) $\lim_{x \rightarrow +\infty} \left(\frac{1}{x^5} \right) = \dots\dots$

③

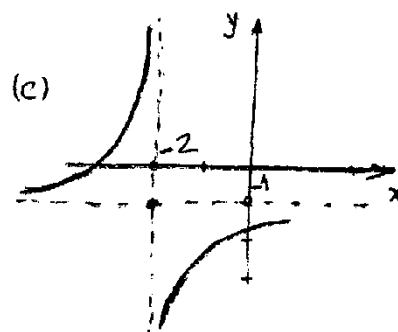
Escreva a função correspondente a cada um dos gráficos seguintes:



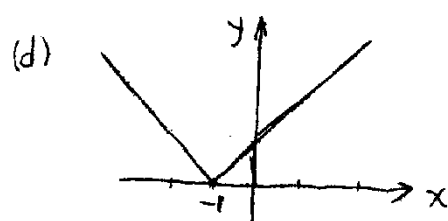
$f(x) = \dots\dots\dots$



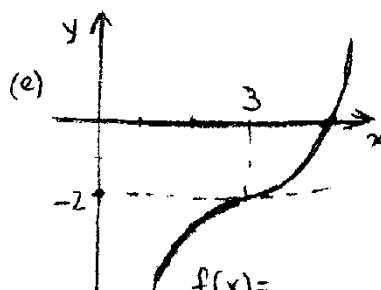
$f(x) = \dots\dots\dots$



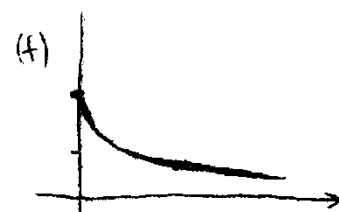
$f(x) = \dots\dots\dots$



$f(x) = \dots\dots\dots$



$f(x) = \dots\dots\dots$



$f(x) = \dots\dots\dots$

Obs: Os gráficos acima foram traçados (admita) por deslocamentos de gráficos padrões de curvas tais como $y=x^2$, $y=x^3$, $y=\frac{1}{x}$, $y=|x|$, $y=\sqrt{x}$ etc...

④

Ache a reta normal (no ponto correspondente a $x=-2$) à curva $y = (x^2 + 3x)^2$ e o ponto onde ela corta Ox .

⑤

Derivar as seguintes funções:

(a) $f(x) = \sqrt{3x^4 - 5x^2 + 1}$; (b) $f(x) = \frac{5x^2 + 1}{2x^3 + 3x^2}$
 (c) $f(x) = (x-1)^{\frac{1}{5}} (x^3 + x)^{\frac{2}{3}}$ (d) $f(x) = \frac{1}{\sqrt{x+1} \cdot \sqrt{x}}$