26/01/2016

1) $f(x)=\frac{4}{x+2/x}-\frac{2}{x+1/x}$

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

$=\frac{(4x^3+4x)-(2x^3+4x)}{x^4+x^2+2x^2+2}=\frac{2x^3}{x^4+3x^2+2}$

$C=\frac{x\cdot f'(x)}{f(x)}$

derivata $=\left(\frac{f}{g}\right)'=\frac{f'\cdot g-f\cdot g'}{g^2}=$

$=\frac{2(3x^2)\cdot x^4+3x^2+2-2x^3\cdot 4x^3+3\cdot(2x)+0}{(x^4+3x^2+2)^2}=\frac{6x^2(x^4+3x^2+2)-2x^3(4x^3+6x)}{(x^4+8x^2+2)^2}=$

$=\frac{(6x^6+18x^4+12x^2)-(8x^6+12x^4)}{(x^4+8x^2+2)^2}=\frac{-2x^6+6x^4+12x^2}{(x^4+3x^2+2)^2}$

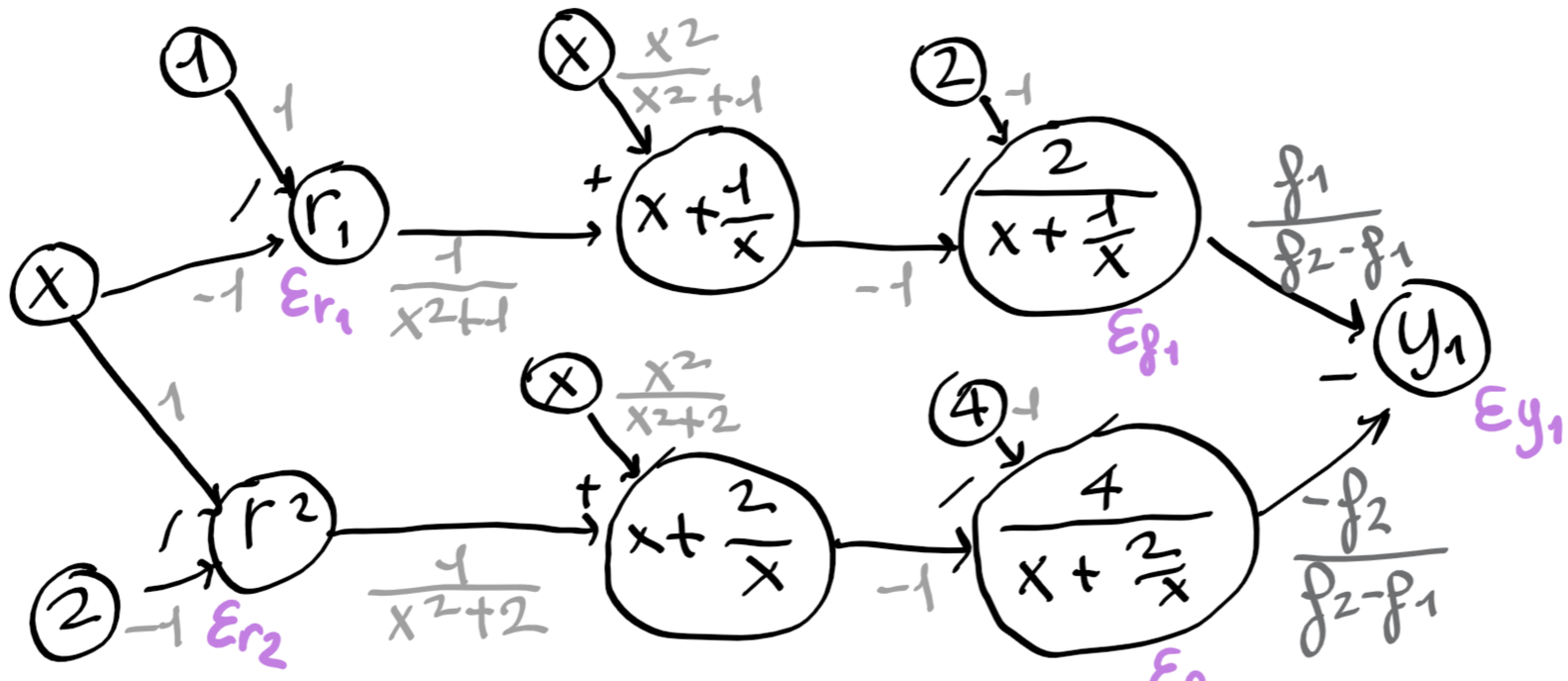
$x\cdot\frac{(-2x^6+6x^4+12^2)}{(x^4+3x^2+2)^2}\cdot\frac{\cancel{x^4+3x^2+2}}{2x^3}=\frac{-2x^7+6x^5+12x^3}{2x^3(x^4+3x^2+2)}=\frac{\cancel{-2x^3}(x^4-3x^2-6)}{\cancel{2x^3}(x^4+3x^2+2)}=$

$-(x^4-3x^2-6)\qquad -x^4+3x^2+6$

$=\frac{}{x^4+3x^2+2}=\frac{}{x^4+3x^2+2}$

$\lim_{x\to 0}(c)=\lim_{x\to 0}\frac{\cancel{-x^4+3x^2+6}}{\cancel{x^4+3x^2+2}}=\frac{6}{2}=3$

$a_1=\quad r_1=1/x\,;\quad r_2=2/x\,;\quad f_1=\frac{2}{x+r_1}\,;\quad f_2=\frac{4}{x+r_2}\,;\quad y=f_2-f_1$



$q/c=\quad x+\frac{1}{x}=\frac{x^2+1}{x}\rightarrow\frac{x}{\frac{x^2+1}{x}}=x\cdot\frac{x}{x^2+1}=\frac{x^2}{x^2+1}\rightarrow$

$b/c=\frac{\frac{1}{x}}{\frac{x^2+1}{x}}=\frac{1}{\cancel{x}}\cdot\frac{\cancel{x}}{x^2+1}=\frac{1}{x^2+1}$

$\varepsilon_{a_1}=$

$$\varepsilon_{r_1}\left\{\frac{1}{x^2+1}\cdot(-1)\cdot\varepsilon_{f_1}\right\}+\varepsilon_{r_2}\left\{\frac{1}{x^2+2}\cdot(-1)\cdot\varepsilon_{f_2}\right\}+\varepsilon_{f_1}\left\{\frac{f_1}{f_2-f_1}\right\}+\varepsilon_{f_2}\left\{\frac{-f_2}{f_2-f_1}\right\}+\varepsilon_{y_1}$$

$$f(x)=\frac{3x-2}{3x+2}-\frac{x-3}{x+3}$$

$$=\frac{(3x-2)(x+3)-(x-3)(3x+2)}{(3x+2)(x+3)}=\frac{(3x^2+9x-2x-6)-(3x^2+2x-9x-6)}{3x^2+11x+6}=$$

$$=\frac{3x^2+9x-2x-6-3x^2-2x+9x+6}{3x^2+11x+6}=\frac{18x-4x}{3x^2+11x+6}=\frac{14x}{3x^2+11x+6}$$

$$\text{der}\left(\frac{f}{g}\right)'=\frac{f'g-f\cdot g'}{g'}=\frac{14\cdot(3x^2+11x+6)-(14x)\cdot(6x+11+0)}{(3x^2+11x+6)^2}=$$

$$\frac{(42x^2+154x+84)-(84x^2+154x)}{(3x^2+11x+6)^2}=\frac{42x^2+154x+84-84x^2-154x}{(3x^2+11x+6)^2}=$$

$$=\frac{-42x^2+84}{(3x^2+11x+6)^2}$$

$$c=\frac{x\cdot f'(x)}{f(x)}=x\cdot\frac{-42x^2+84}{(3x^2+11x+6)^2}\cdot\frac{3x^2+11x+6}{14x}=\frac{14(-3x^2+6)}{3x^2+11x+6}\cdot\frac{1}{14_1}=\frac{-3x^2+6}{3x^2+11+6}$$

$$\lim_{x\to-\infty}=\frac{-\infty}{\infty}=-1$$

alg$_1$: $f_1=\frac{3x-2}{3x+2}$ $f_2=\frac{x-3}{x+3}$ $y_1=f_1-f_2$