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$$y = \frac{ax^2+bx+c}{dx+e}$$

asintoti: $x = 2$

$y = -x-1$

in $x=1$ è tangente hc $m=2$

① $\lim_{x\to 2} f(x) = \infty$

$\lim_{x\to 2} \frac{ax^2+bx+c}{dx+e} = \infty$

② $\lim_{x\to\infty} F(x) = \infty$

$*^2$ $\lim_{x\to\infty} \frac{F(x)}{x} = -1$

$*^1$ $2d+e=0$

$*^3$ $\lim_{x\to\infty} \left(F(x)-m(x)\right) = -1$

$*^2$ $\lim_{x\to\infty} \frac{dx^2+bx+c}{x(dx+e)} \Rightarrow \frac{a}{d} = -1$

$*^3$ $\lim_{x\to\infty} \frac{dx^2+bx+c+dx^2+ex}{(dx+e)} = -1$

$\lim_{x\to\infty} \frac{x^2(a+d)+x(b+e)+c}{(dx+e)} = -1$

$*^2$ $a+d=0$

$*^4$ $\frac{b+e}{d} = -1$

$*^5$ $f'(1) = 2$

$$\frac{(2dx+b)(dx+e)-(dx^2+bx+c)(d)}{(dx+e)^2} =$$

$$\frac{2dd+2de+bd+be-ad-bd-cd}{(d+e)^2} = 2$$

$$\frac{a(d+2e)+be-cd}{(d+e)^2} = 2$$

$a+d=0 \Rightarrow a=-d$

$2d+e=0 \Rightarrow e=-2d$

$\frac{a}{d} = -1 \Rightarrow -1=-1$ con $d\neq 0$

$\frac{b+e}{d} = -1 \Rightarrow \frac{b-2d}{d} = -1 \Rightarrow b = -d+2d \Rightarrow b=d$

$$\frac{a(d+2e)+be-cd}{(d+e)^2} = 2 \Rightarrow \frac{-d[d+(-4d)]+(-2d^2)-cd}{d^2} = 2$$

$$\begin{cases} a+d=0 \Rightarrow a=-d \\ 2d+e=0 \Rightarrow e=-2d \\ \frac{a}{d}=-1 \Rightarrow -1=-1 \quad \text{con } d\neq 0 \\ \frac{b+e}{d}=-1 \Rightarrow \frac{b-2d}{d}=-1 \Rightarrow b=-d+2d \Rightarrow b=d \\ \frac{a(d+2e)+be-cd}{(d+e)^2}=2 \Rightarrow \frac{-d\left[d+(-4d)\right]+(-2d^2)-cd}{d^2}=2 \end{cases}$$

$$\begin{cases} e=-2d \\ a=-d \\ 0=0 \quad \text{con } d\neq 0 \\ b=d \\ -d^2+4d^2-2d^2-cd=2d^2 \Rightarrow -d(c+d)=0 \Rightarrow d=-c \end{cases}$$

$$y=\frac{-dx^2+dx-d}{dx-2d} \qquad y=\frac{d}{d}\left(\frac{-x^2+x-1}{x-2}\right)=$$

$$y=\frac{-x^2+x-1}{x-2}$$