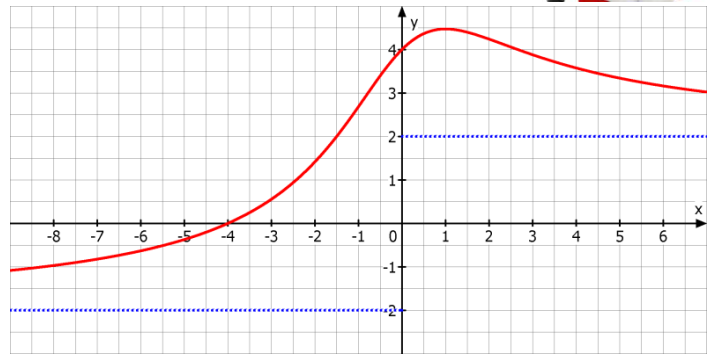


Q11 \* Mathematik \* „Schöne“ Funktionen für eine Kurvendiskussion



$$f(x) = \frac{2x+8}{\sqrt{x^2+4}} ; f'(x) = \frac{8 \cdot (1-x)}{(x^2+4)^{3/2}}$$

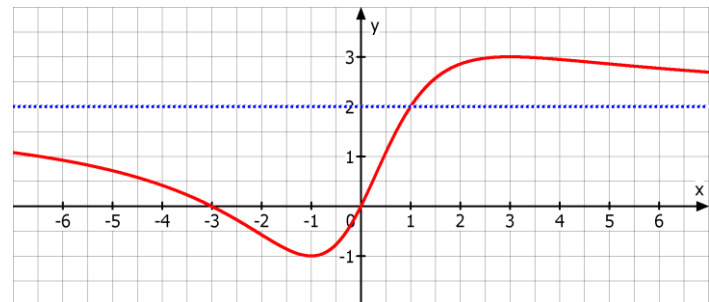
HOP( $1/2\sqrt{5}$ ) ;  $\lim_{x \rightarrow \pm\infty} f(x) = \pm 2$



$$f(x) = \frac{2x^2+6x}{x^2+3} ; \lim_{x \rightarrow \pm\infty} f(x) = 2$$

$$f'(x) = \frac{6 \cdot (-x^2+2x+3)}{(x^2+3)^2}$$

TIP(-1/-1) ; HOP(3/3)

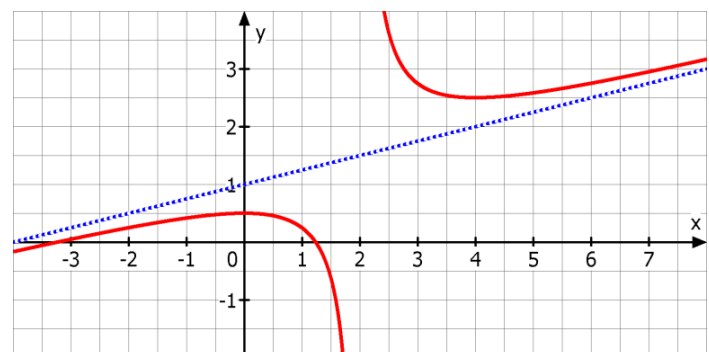


$$f(x) = \frac{x^2+2x+8}{4x-8}$$

Schräg liegende Asymptote  
 $y = 0,25x + 1$  für  $x \rightarrow \pm\infty$

$$f'(x) = \frac{4x \cdot (x-4)}{(4x-8)^2}$$

HOP(0/0,5) ; TIP(4/2,5)



$$f(x) = \frac{1}{8}(3x^4 - 4x^3 - 12x^2) ; \lim_{x \rightarrow \pm\infty} f(x) = \infty$$

$$f'(x) = \frac{3}{2}x(x+1) \cdot (x-2)$$

HOP(-1/-5/8) ; TIP(2/-4)

