$$f_h(x) = \frac{3h-3}{(x+2)^h}\ h > 1\ ;\ I = [0;\infty]$$
$$A(z) = \int_0^z \frac{3h-3}{(x+2)^h} dx = [-\frac{1}{h-1}\frac{3h-3}{(x+2)^{h-1}}]_0^z$$
$$-\frac{1}{-h+1}\frac{3h-3}{z+2}^{h-1} - (-\frac{1}{h-1}\frac{3h-3}{2^{h-1}})$$
$$A_h = A_h(z) \lim_{z\to\infty} A_h(z) = \frac{1}{h-1}\frac{3h-3}{2^{h-1}} = 1$$
$$\frac{3h-3}{h-1} = 2^{h-1}$$
$$\ln\frac{3h-3}{h-1} = (h-1)\ln(2)$$
$$\ln 3\frac{h-1}{h-1} = (h-1)\ln(2)$$
$$ln(3) = (h-1)\ln(2)$$
$$h = 1 + \frac{\ln 3}{\ln 2}$$

Skizzieren Sie die Graphen der folgenden Funktion:

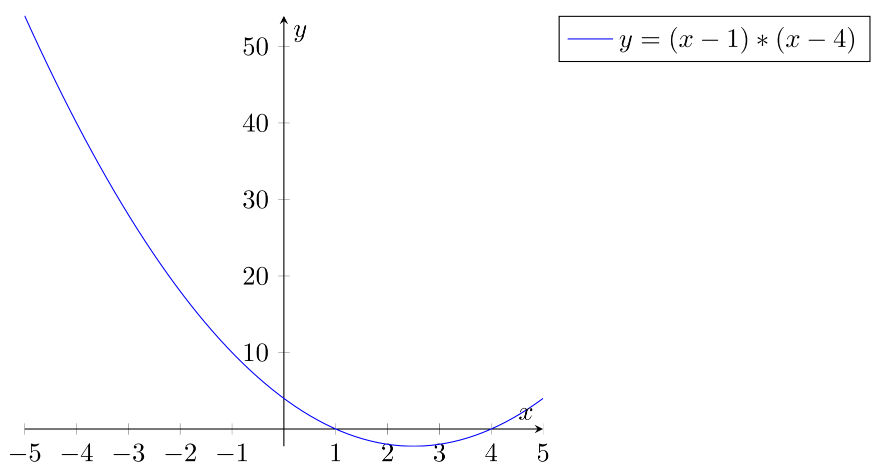
i) $f(x) = (x-1)(x-4)$

ii) $g(x) = (x-1)(x-4)^2$

iii) $i(x) = (x-1)^2(x-4)^2$

iv) $j(x) = (x-1)(x-4)^4$

Example



Formulieren sie eine Vermutung für den Graphen def Funktion f mit $l(x) = (x-1)^k(x-4)^m$