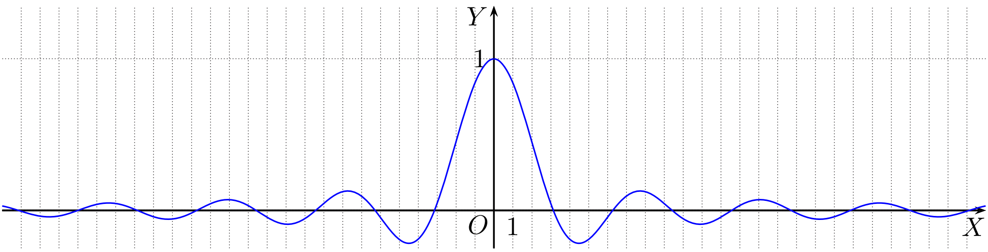
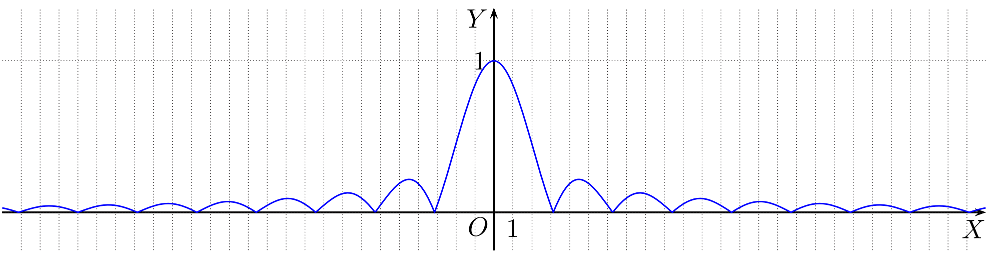
$f : \mathbf{R} \setminus \{0\} \to \mathbf{R},\ f(x) = \dfrac{\sin x}{x}$

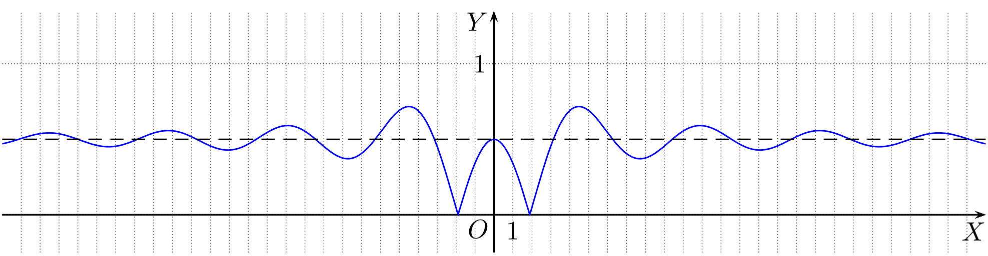
$\lim\limits_{x \to 0} f(x) = 1,\ \lim\limits_{x \to \pm\infty} f(x) = 0$



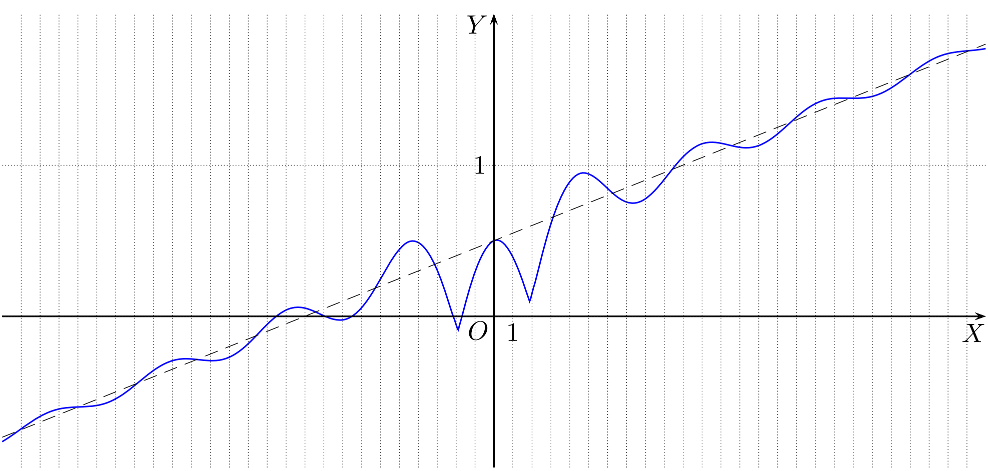
$g(x) = |f(x)|$



$h(x) = |f(x) - \frac{1}{2}|$, prosta $y = \frac{1}{2}$ jest asymptotą poziomą wykresu funkcji h

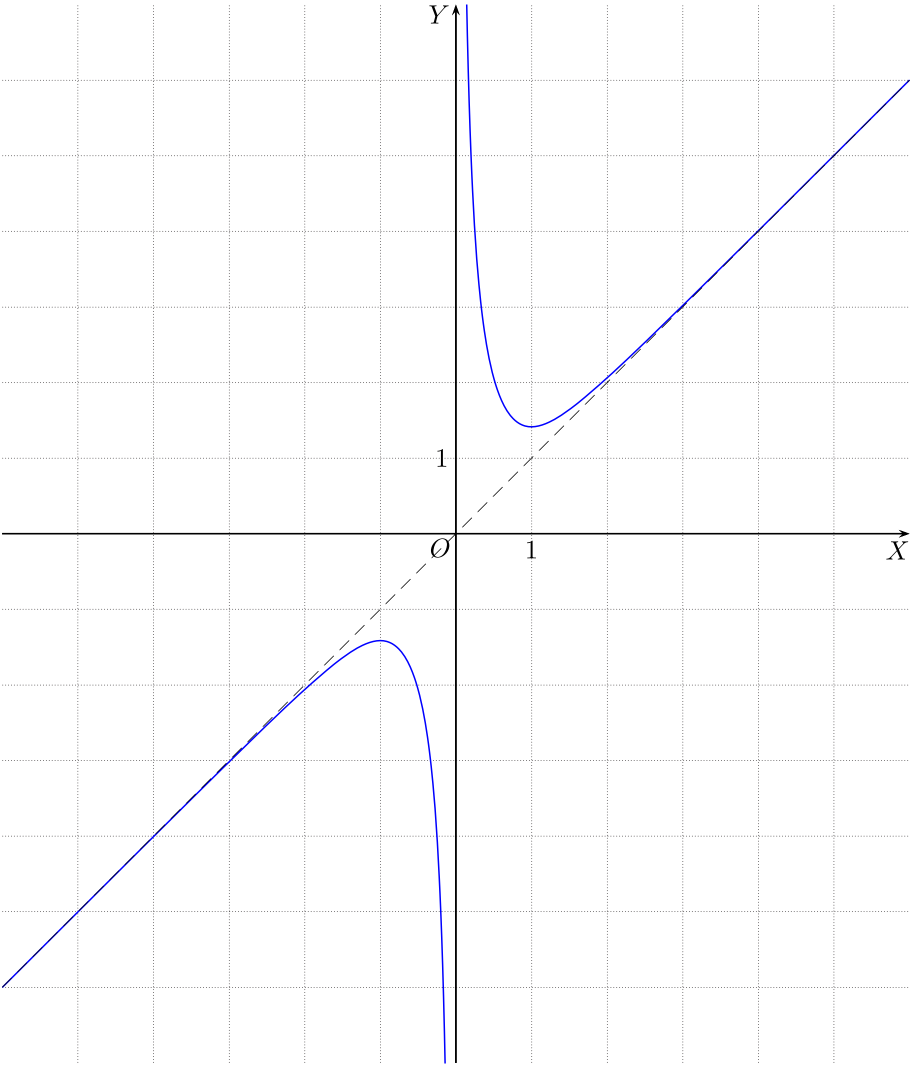


$k(x) = |f(x) - \frac{1}{2}| + \frac{1}{20}x$, prosta $y = \frac{1}{20}x + \frac{1}{2}$ jest asymptotą ukośną wykresu funkcji k w $\pm\infty$. Asymptota ta przecina wykres funkcji w punktach postaci $x = k\pi$, gdzie $k \in \mathbf{C}$.

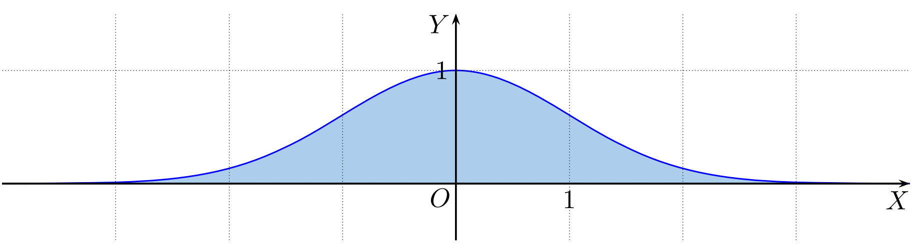


$f : \mathbf{R} \setminus \{0\} \to \mathbf{R},\ f(x) = \frac{\sqrt{x^4+1}}{x}$

$\lim_{x \to 0^+} f(x) = \infty,\ \lim_{x \to 0^-} f(x) = -\infty,\ \lim_{x \to -\infty} f(x) = -\infty,\ \lim_{x \to \infty} f(x) = \infty$



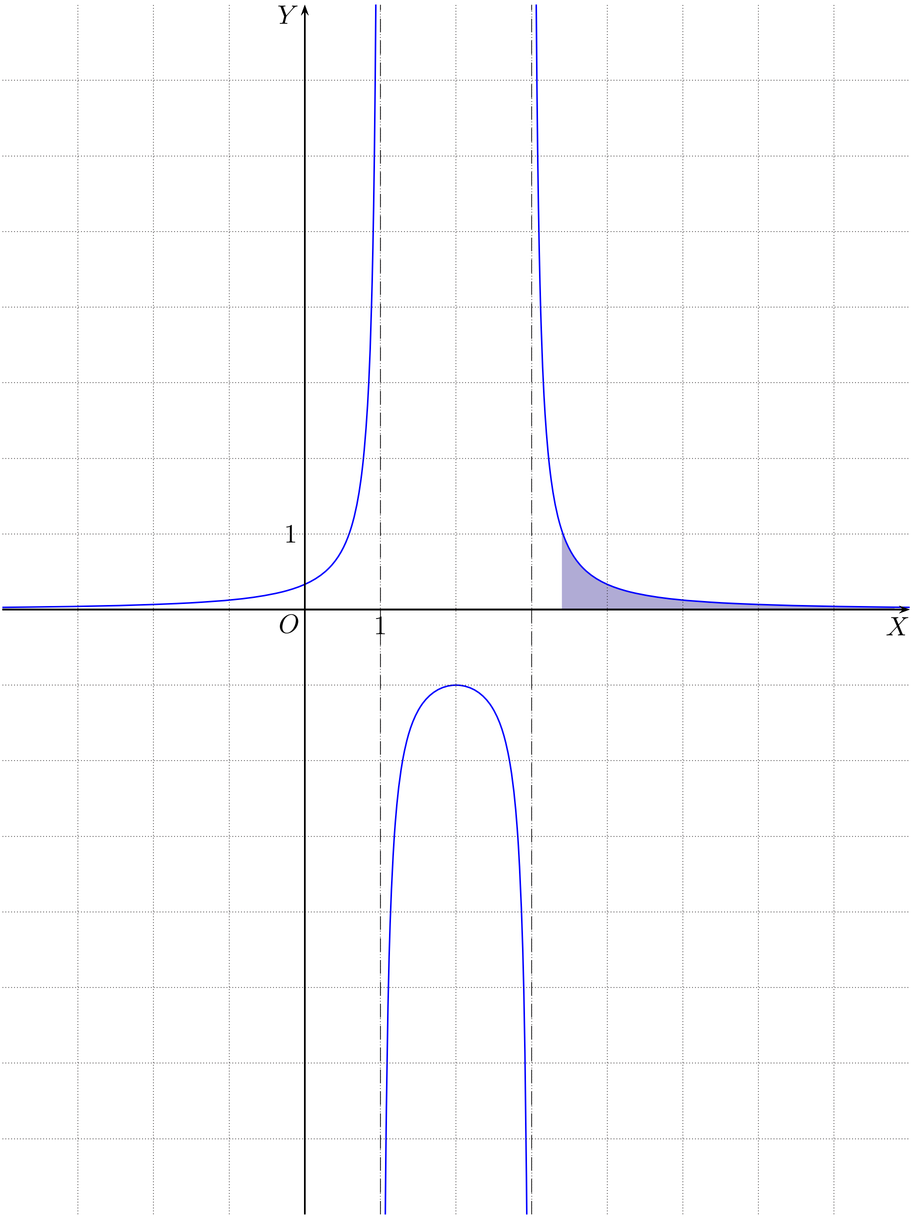
$g(x) = e^{-\frac{x^2}{2}}$



$\int_{-\infty}^{\infty} g(x)dx = \sqrt{2\pi}.$

$f : \mathbf{R} \setminus \{1, 3\} \to \mathbf{R},\ f(x) = \frac{1}{x^2 - 4x + 3}$

$\lim_{x \to 1^-} f(x) = \infty,\ \lim_{x \to 1^+} f(x) = -\infty,\ \lim_{x \to \pm\infty} f(x) = 0$



$\int f(x)dx = \frac{1}{2} \ln \left| \frac{x-3}{x-1} \right|$. Zatem pole zaznaczonego obszaru jest równe:

$$\int_{2+\sqrt{2}}^{\infty} f(x)\, dx = \frac{1}{2} \ln \left| \frac{x-3}{x-1} \right| \Bigg|_{2+\sqrt{2}}^{\infty} = -\frac{1}{2} \ln \frac{\sqrt{2}-1}{\sqrt{2}+1} = -\ln\left(\sqrt{2} - 1\right) \approx 0{,}8814$$