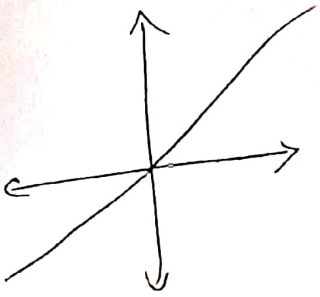
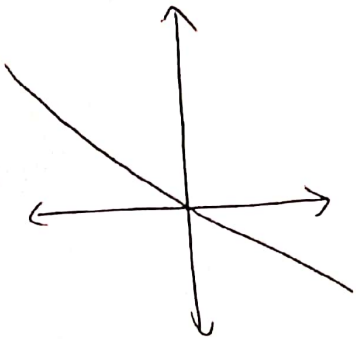
Review:

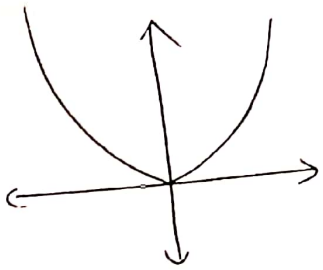
$f(x) = x$



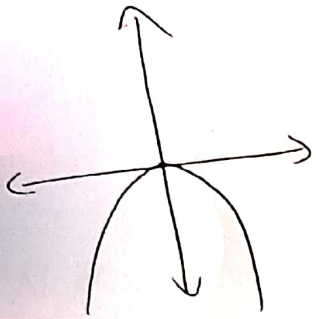
$f(x) = -x$



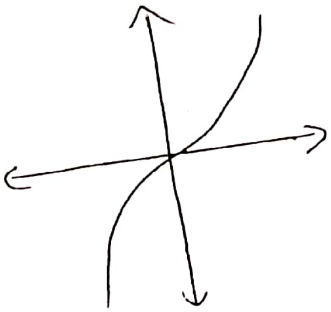
$f(x) = x^2$



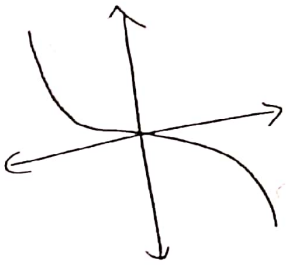
$f(x) = -x^2$



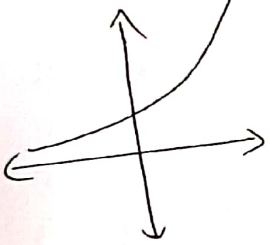
$f(x) = x^3$



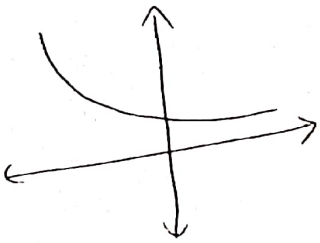
$f(x) = -x^3$



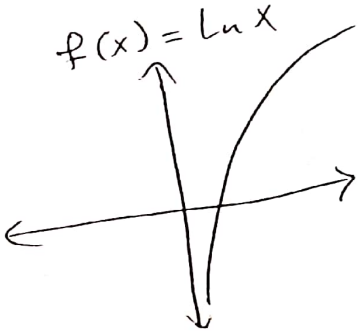
$f(x) = e^x$



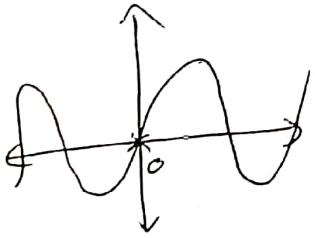
$f(x) = e^{-x}$



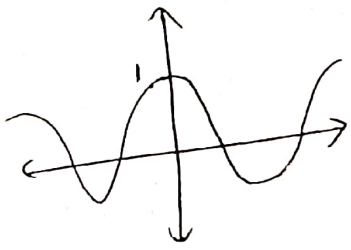
$f(x) = \ln x$



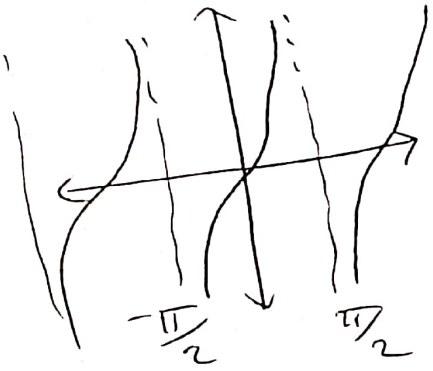
$f(x) = \sin x$



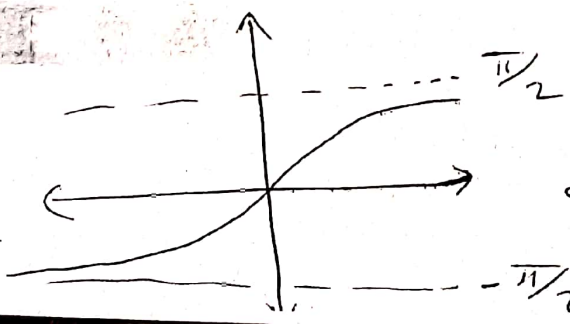
$f(x) = \cos x$



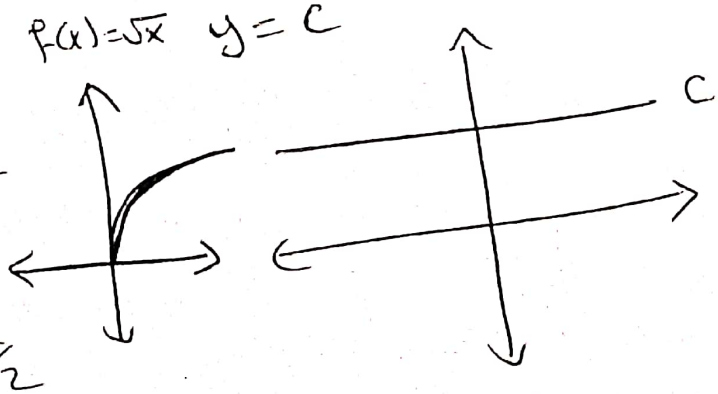
$f(x) = \tan x$



$f(x) = \tan^{-1} x$

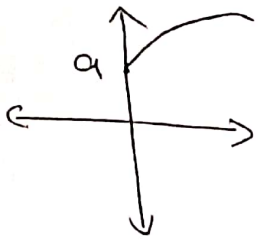


$f(x) = \sqrt{x}$ $y = c$

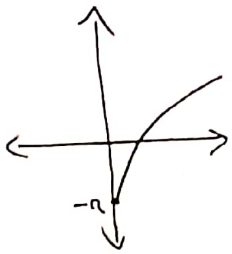


Shifts

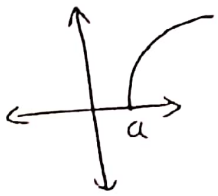
$\sqrt{x} \Rightarrow \sqrt{x} + a$



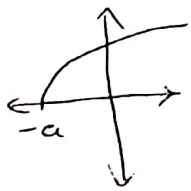
$\sqrt{x} - a$



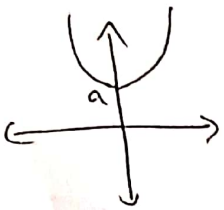
$\sqrt{x-a}$



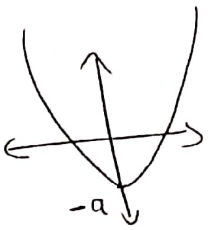
$\sqrt{x+a}$



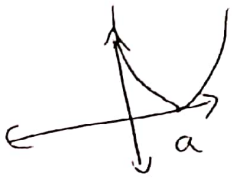
$x^2 \Rightarrow x^2 + a$



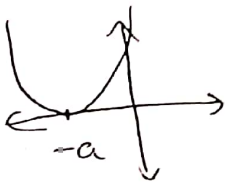
$x^2 - a$



$(x-a)^2$



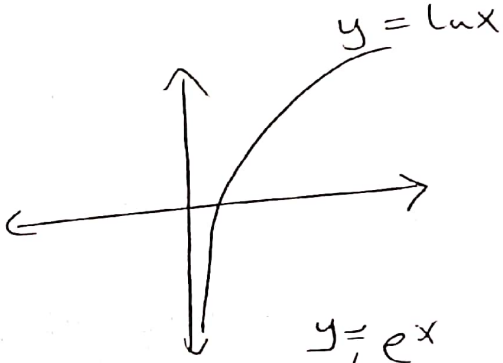
$(x+a)^2$



Note

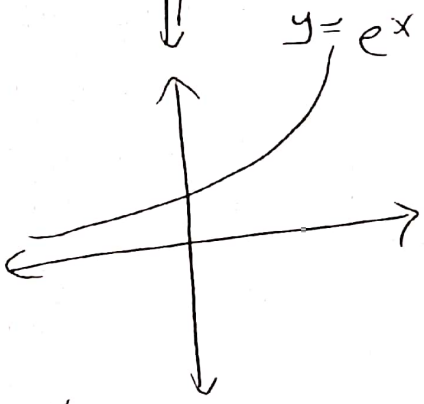
* $\lim_{x \to 0^+} \ln x = -\infty$

$\lim_{x \to \infty} \ln x = \infty$



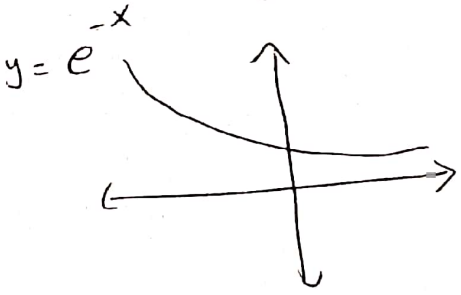
$\lim_{x \to -\infty} e^x = 0$

$\lim_{x \to \infty} e^x = \infty$



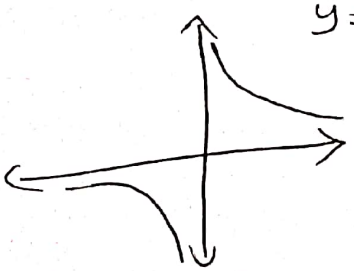
$\lim_{x \to \infty} e^{-x} = 0$

$\lim_{x \to -\infty} e^{-x} = \infty$



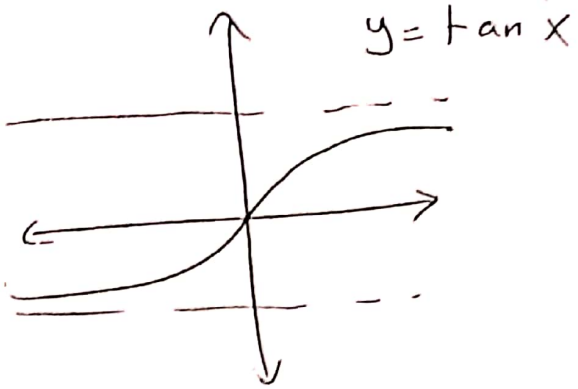
$\lim_{x \to \infty} \frac{1}{x} = 0$

$\lim_{x \to -\infty} \frac{1}{x} = 0$

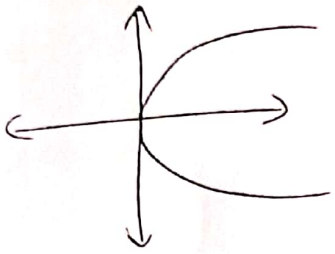


$\lim_{x \to \infty} \tan^{-1} x = \frac{\pi}{2}$

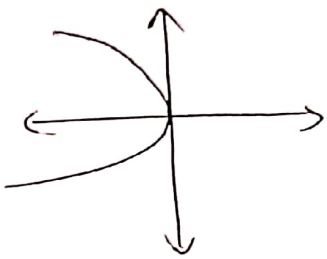
$\lim_{x \to -\infty} \tan^{-1} x = -\frac{\pi}{2}$



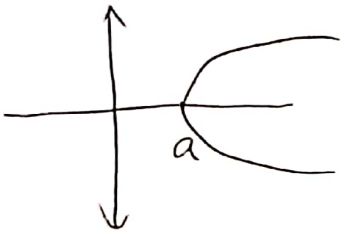
* $x = y^2$



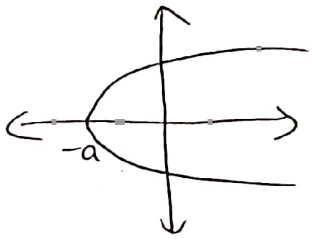
* $x = -y^2$



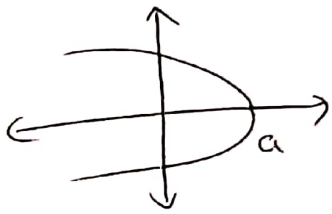
$x = y^2 + a$



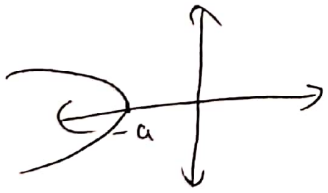
$x = y^2 - a$



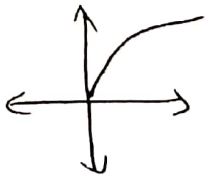
$x = -y^2 + a$



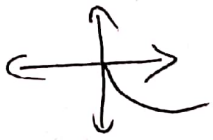
$x = -y^2 - a$



* Note: $f(x) = \sqrt{x}$



$f(x) = -\sqrt{x}$



$f(x) = \sqrt{-x}$