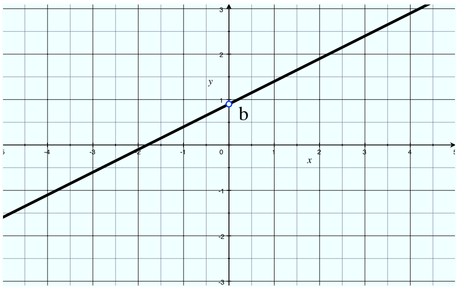
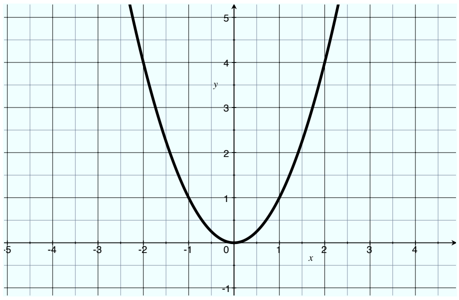
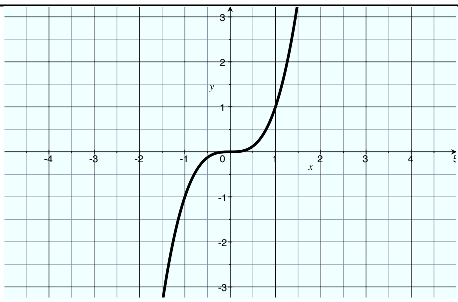
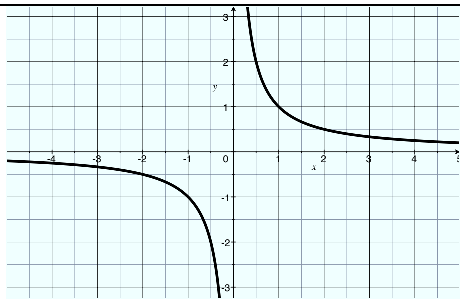
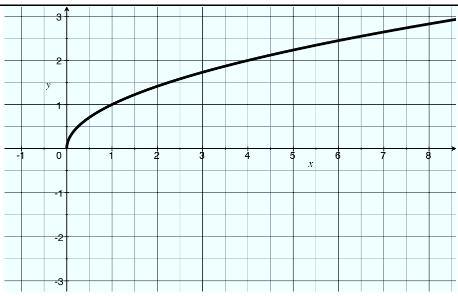
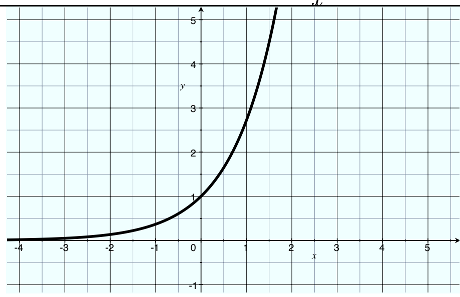
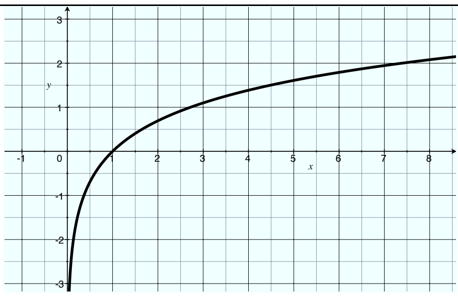
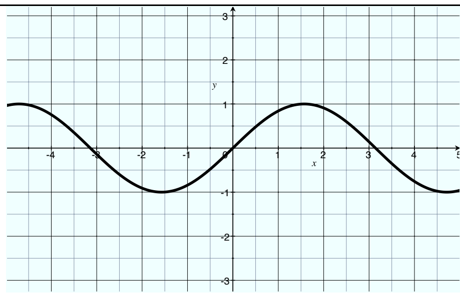
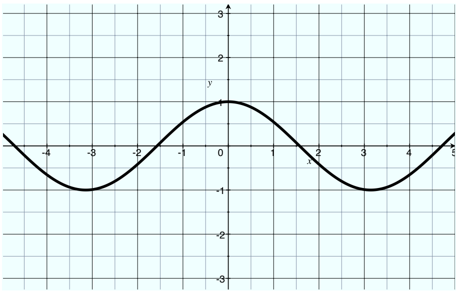
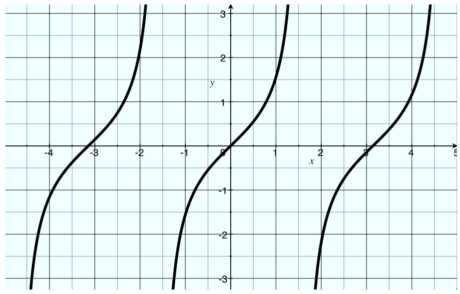
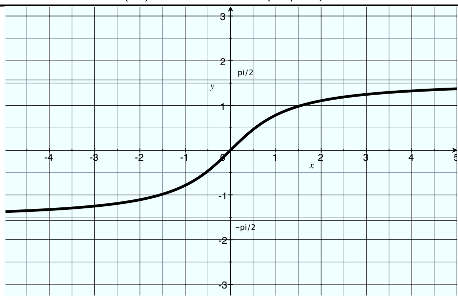
Fonctions usuelles

Il faut retenir l'allure du graphe de chacune de ces fonctions, et ses caractéristiques principales: sa valeur en 0, son sens de variation…

		
f	$f(x) = ax + b$	$f(x) = x^2$
f'	$f'(x) = a$	$f'(x) = 2x$
obs.	droite	parabole
		
f	$f(x) = x^3$	$f(x) = x^{-1} = \frac{1}{x}$
f'	$f'(x) = 3x^2$	$f'(x) = -x^{-2} = \frac{-1}{x^2}$
obs.		retenir $x^{-k} = \frac{1}{x^k}$
		
f	$f(x) = x^{1/2} = \sqrt{x}$	$f(x) = e^x = \exp(x)$
f'	$f'(x) = \frac{1}{2}x^{-1/2} = \frac{1}{2\sqrt{x}}$	$f'(x) = e^x$
obs.	retenir $\sqrt{x} = x^{1/2}$, $\sqrt[3]{x} = x^{1/3}$, $\sqrt[k]{x} = x^{1/k}$	retenir $2^x = e^{x \ln 2}, 10^x = e^{x \ln 10}, a^x = e^{x \ln a}$ $e^0 = 1$
		
f	$f(x) = \ln x$	$f(x) = \sin x$
f'	$f'(x) = \frac{1}{x}$	$f'(x) = \cos x$
obs.	non définie pour $x \leq 0$ $\ln 0$ non défini. $\ln 1 = 0$	périodique de période 2π $\sin(0) = 0, \sin(\pi/2) = 1$

		
f	$f(x) = \cos x$	$f(x) = \tan x = \frac{\sin x}{\cos x}$
f'	$f'(x) = -\sin x$	$f'(x) = 1 + \tan^2 x = \frac{1}{\cos^2 x}$
obs.	périodique de période 2π $\cos(0) = 1, \cos(\pi/2) = 0$	périodique de période π $\tan(0) = 0, \tan(\pi/2)$ non défini
		
f	$f(x) = \arctan x$	
f'	$f'(x) = \frac{1}{1+x^2}$	
obs.	fonction bornée, à valeurs dans $]-\pi/2, \pi/2[$, définie sur $\mathbb{R}$.	