Domain and Range of common functions			
Name	**Formula/How it looks like**	**Domain**	**Range**
Constant Function	$f(x) = b$, for some fixed number $b \in \mathbb{R}$.	$\mathbb{R}$	$\{b\}$
Linear Function	$f(x) = ax+b$, for fixed numbers $a, b \in \mathbb{R}$, with $a \neq 0$.	$\mathbb{R}$	$\mathbb{R}$
Power Function	$f(x) = x^n$, for some $n \in \mathbb{N}$, $n \geq 2$.	$\mathbb{R}$	$\mathbb{R}$ if n is odd, $\mathbb{R}_{\geq 0} = [0, +\infty)$ if n is even.
Polynomial Function	$f(x) = a_n x^n + \ldots + a_1 x + a_0$, with $a_0, a_1, \ldots, a_n$ fixed numbers and $a_n \neq 0$.	$\mathbb{R}$	It depends!
Rational Function	$f(x) = \frac{P(x)}{Q(x)}$, where $P(x)$ and $Q(x)$ are polynomials.	$x \in \mathbb{R}$ such that $Q(x) \neq 0$.	It depends!
Exponential	$f(x) = e^x$	$\mathbb{R}$	$\mathbb{R}_+ = (0, +\infty)$
Logarithm	$f(x) = \ln(x)$	$\mathbb{R}_+ = (0, +\infty)$	$\mathbb{R}$
Sine	$f(x) = \sin(x)$	$\mathbb{R}$	$[-1, 1]$
Cosine	$f(x) = \cos(x)$	$\mathbb{R}$	$[-1, 1]$
Tangent	$f(x) = \tan(x)$	All real numbers but $\frac{k\pi}{2}$, where k is an odd integer. (This is where $\cos(x) = 0$.)	$\mathbb{R}$
Secant	$f(x) = \sec(x) = \frac{1}{\cos(x)}$	All real numbers but $\frac{k\pi}{2}$, where k is an odd integer. (This is where $\cos(x) = 0$.)	$(-\infty, -1] \cup [1, +\infty)$
Cosecant	$f(x) = \csc(x) = \frac{1}{\sin(x)}$	All real numbers but those of the form $k\pi$, for any integer k. (This is where $\sin(x) = 0$.)	$(-\infty, -1] \cup [1, +\infty)$
Cotangent	$f(x) = \cot(x) = \frac{1}{\tan(x)} = \frac{\cos(x)}{\sin(x)}$	All real numbers but those of the form $k\pi$, for any integer k. (This is where $\sin(x) = 0$.)	$\mathbb{R}$
Arcsine or Inverse Sine	$f(x) = \arcsin(x)$ or $f(x) = \sin^{-1}(x)$	$[-1, 1]$	$\left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$
Arc-cosine or Inverse Cosine	$f(x) = \arccos(x)$ or $f(x) = \cos^{-1}(x)$	$[-1, 1]$	$[0, \pi]$
Arctangent or Inverse Tangent	$f(x) = \arctan(x)$ or $f(x) = \tan^{-1}(x)$	$\mathbb{R}$	$\left(-\frac{\pi}{2}, +\frac{\pi}{2}\right)$