

Function	Graph	Domain/ Range	Zeros Y-intercept	Even/Odd Symmetry	Extrema (Max/Min)	Concavity/ Point of Inflection	One-to-One/ Continuity/ Bounded	End Behavior
Constant linear $f(x) = a$		Domain $(-\infty, \infty)$ Range $[a]$	Zero N/A Y-Intercept a	Even/Odd even Symmetry y-axis	N/A	Concave Up N/A Concave Down N/A POI N/A	One-to-One no Continuity yes Bounded yes	$\lim_{x \rightarrow \infty} f(x) = a$ $\lim_{x \rightarrow -\infty} f(x) = a$
Linear $f(x) = x$		Domain $(-\infty, \infty)$ Range $(-\infty, \infty)$	Zero 0 Y-Intercept 0	Even/Odd odd Symmetry origin	N/A	Concave Up N/A Concave Down N/A POI N/A	One-to-One yes Continuity yes Bounded no	$\lim_{x \rightarrow \infty} f(x) = \infty$ $\lim_{x \rightarrow -\infty} f(x) = -\infty$
Quadratic $f(x) = x^2$		Domain $(-\infty, \infty)$ Range $[0, \infty)$	Zero 0 Y-Intercept 0	Even/Odd even Symmetry y-axis	Abs. min $y = 0$	Concave Up $(-\infty, \infty)$ Concave Down N/A POI N/A	One-to-One no Continuity yes Bounded below	$\lim_{x \rightarrow \infty} f(x) = \infty$ $\lim_{x \rightarrow -\infty} f(x) = \infty$
Cubic $f(x) = x^3$		Domain $(-\infty, \infty)$ Range $(-\infty, \infty)$	Zero 0 Y-Intercept 0	Even/Odd odd Symmetry origin	N/A	Concave Up $(0, \infty)$ Concave Down $(-\infty, 0)$ POI $(0, 0)$	One-to-One yes Continuity yes Bounded no	$\lim_{x \rightarrow \infty} f(x) = \infty$ $\lim_{x \rightarrow -\infty} f(x) = -\infty$
Square Root $f(x) = \sqrt{x}$		Domain $[0, \infty)$ Range $[0, \infty)$	Zero 0 Y-Intercept 0	Even/Odd N/A Symmetry N/A	N/A	Concave Up N/A Concave Down $(0, \infty)$ POI N/A	One-to-One yes Continuity yes Bounded below	$\lim_{x \rightarrow \infty} f(x) = \infty$ $\lim_{x \rightarrow 0} f(x) = 0$

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Cube Root $f(x) = \sqrt[3]{x}$		Domain $(-\infty, \infty)$ Range $(-\infty, \infty)$	Zero 0 Y-Intercept 0	Even/Odd Odd Symmetry origin	N/A	Concave Up $(-\infty, 0)$ Concave Down $(0, \infty)$ POI $(0, 0)$	One-to-One yes Continuity yes Bounded no	$\lim_{x \rightarrow -\infty} = -\infty$ $\lim_{x \rightarrow \infty} = \infty$
Absolute Value $f(x) = x $		Domain $(-\infty, \infty)$ Range $[0, \infty)$	Zero 0 Y-Intercept 0	Even/Odd even Symmetry y-axis	Abs Min $y = 0$	Concave Up N/A Concave Down N/A POI N/A	One-to-One no Continuity yes Bounded below	$\lim_{x \rightarrow \pm\infty} f(x) = \infty$
Greatest Integer $f(x) = [x]$		Domain $(-\infty, \infty)$ Range set of integers	Zero $[0, 1)$ Y-Intercept 0	Even/Odd N/A Symmetry N/A	N/A	Concave Up N/A Concave Down N/A POI N/A	One-to-One no Continuity no Bounded no	$\lim_{x \rightarrow \infty} = \infty$ $\lim_{x \rightarrow -\infty} = -\infty$
Rational $f(x) = \frac{1}{x}$		Domain $(-\infty, 0) \cup (0, \infty)$ Range $(-\infty, 0) \cup (0, \infty)$	Zero N/A Y-Intercept N/A	Even/Odd odd Symmetry origin	N/A	Concave Up $(0, \infty)$ Concave Down $(-\infty, 0)$ POI N/A	One-to-One yes Continuity no Bounded no	$\lim_{x \rightarrow -\infty} = 0$ $\lim_{x \rightarrow \pm\infty} = \infty$
Exponential $f(x) = a^x$		Domain $(-\infty, \infty)$ Range $(0, \infty)$	Zero N/A Y-Intercept 1	Even/Odd N/A Symmetry N/A	N/A	Concave Up $(-\infty, \infty)$ Concave Down N/A POI N/A	One-to-One yes Continuity yes Bounded below	$\lim_{x \rightarrow \infty} = \infty$ $\lim_{x \rightarrow -\infty} = 0$

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Logarithm $f(x) = \log_a x$		Domain $(0, \infty)$ Range $(-\infty, \infty)$	Zero 1 Y-Intercept N/A	Even/Odd N/A Symmetry N/A	N/A	Concave Up N/A Concave Down $(0, \infty)$ POI N/A	One-to-One yes Continuity yes Bounded NO	$\lim_{x \rightarrow \infty} = \infty$ $\lim_{x \rightarrow 0} = -\infty$
Sine $f(x) = \sin x$		Domain $(-\infty, \infty)$ Range $[-1, 1]$	Zero πk Y-Intercept 0	Even/Odd Odd Symmetry Origin	max $y=1$ min $y=-1$	Concave Up $(\pi, 2\pi)$ Concave Down $(0, \pi)$ POI πk	One-to-One NO Continuity yes Bounded bounded	N/A
Cosine $f(x) = \cos x$		Domain $(-\infty, \infty)$ Range $[-1, 1]$	Zero $\pi k + \pi/2$ Y-Intercept 1	Even/Odd Even Symmetry y-axis	max $y=1$ min $y=-1$	Concave Up $(\pi/2, 3\pi/2)$ Concave Down $(-\pi/2, \pi/2)$ POI $\pi/2 + \pi$	One-to-One NO Continuity yes Bounded bounded	N/A
Tangent Inverse $f(x) = \tan^{-1} x$ or $\arctan x$		Domain $(-\infty, \infty)$ Range $(-\pi/2, \pi/2)$	Zero 0 Y-Intercept 0	Even/Odd Odd Symmetry Origin	N/A	Concave Up $(-\infty, 0)$ Concave Down $(0, \infty)$ POI $(0, 0)$	One-to-One yes Continuity yes Bounded bounded	$\lim_{x \rightarrow \infty} = \pi/2$ $\lim_{x \rightarrow -\infty} = -\pi/2$
Logistic $f(x) = \frac{1}{1+e^{-x}}$		Domain $(-\infty, \infty)$ Range $(0, 1)$	Zero N/A Y-Intercept $1/2$	Even/Odd N/A Symmetry N/A	N/A	Concave Up $(-\infty, 0)$ Concave Down $(0, \infty)$ POI $(0, 1/2)$	One-to-One yes Continuity yes Bounded bounded	$\lim_{x \rightarrow \infty} = 1$ $\lim_{x \rightarrow -\infty} = 0$