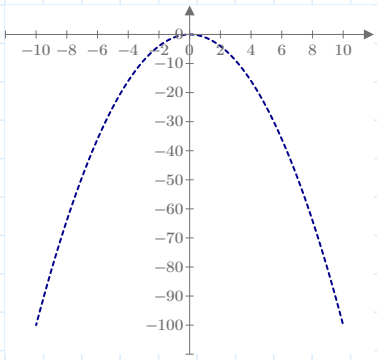


$-x^2$

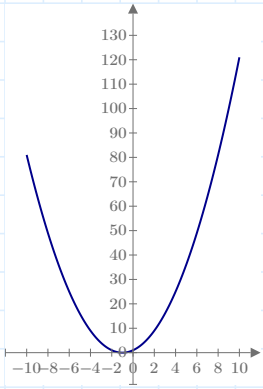
x

Problem 1-1

$f(x) := -x^2$

$\frac{d}{dx} f(x) \rightarrow -(2 \cdot x)$

The function is NOT eventually nondecreasing



$x^2 + 2\ x + 1$

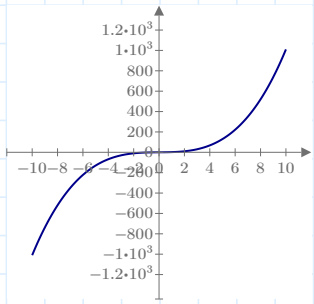
x

Problem 1-2

$f(x) := x^2 + 2\ x + 1$

$\frac{d}{dx} f(x) \rightarrow 2 \cdot x + 2$

The function is eventually nondecreasing



$x^3 + x$

x

Problem 1-3

$f(x) := x^3 + x$

$\frac{d}{dx} f(x) \rightarrow 3 \cdot x^2 + 1$

The function is eventually nondecreasing