

[课时作业]

1. 关注以下函数，课下练习巩固.

$$(1) f(x) = x + e^x, \quad f(x) = x - e^x$$

$$f(x) = x \cdot e^x, \quad f(x) = \frac{x}{e^x}, \quad f(x) = \frac{e^x}{x}$$

$$(2) f(x) = x + \ln x, \quad f(x) = x - \ln x, \quad f(x) = x \cdot \ln x,$$

$$f(x) = \frac{x}{\ln x}, \quad f(x) = \frac{\ln x}{x}$$

$$(3) f(x) = x^n \cdot e^x, \quad f(x) = \frac{x^n}{e^x}, \quad f(x) = \frac{e^x}{x^n}$$

$$(4) f(x) = x^n \cdot \ln x, \quad f(x) = \frac{x^n}{\ln x}, \quad f(x) = \frac{\ln x}{x^n}$$

2. 已知函数 $f(x) = e^x - \ln(x+m)$.

(1) 设 $x=0$ 是 $f(x)$ 的极值点，求 m ，并讨论 $f(x)$ 的单调性；

(2) 当 $m \leq 2$ 时，证明 $f(x) > 0$.