

复合函数求导

【例1】求下列函数的导数

$$(1) f(x) = e^{-x};$$

$$(2) f(x) = (1-x)^{10};$$

$$(3) f(x) = \ln(2x+3);$$

$$(4) f(x) = \cos\left(2x - \frac{\pi}{3}\right);$$

$$(5) f(x) = e^{2x} \cdot \sin(2x+1);$$

$$(6) f(x) = \frac{\ln(2x+1)}{2x+2}.$$

【例2】求下列函数的导数

$$(1) f(x) = e^{x^2};$$

$$(2) f(x) = \sin(\ln x);$$

$$(3) f(x) = \ln(x^2+1);$$

$$(4) f(x) = \cos^4 x.$$

【例3】求下列函数的导数

$$(1) f(x) = \sin^2\left(2x + \frac{\pi}{3}\right);$$

$$(2) f(x) = \cos(\ln(x^2+1)).$$