

数学公式练习

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1 极限

1.1 几个重要的等价无穷小

$$\sin x \sim \underline{\hspace{2cm}}$$

$$(1+x)^{\frac{1}{x}} = \underline{\hspace{2cm}}$$

$$\sin x \sim \underline{\hspace{2cm}}$$

$$\tan x \sim \underline{\hspace{2cm}}$$

$$1 - \cos x \sim \underline{\hspace{2cm}}$$

$$e^x - 1 \sim \underline{\hspace{2cm}}$$

$$\ln 1 + x \sim \underline{\hspace{2cm}}$$

$$(1+x)^a - 1 \sim \underline{\hspace{2cm}}$$

$$\arcsin x \sim \underline{\hspace{2cm}}$$

$$\arctan x \sim \underline{\hspace{2cm}}$$

$$a^x - 1 \sim \underline{\hspace{2cm}}$$

$$x^m + x^k (k > m > 0) \sim \underline{\hspace{2cm}}$$

1.2 几个极限

$$\lim_{n \rightarrow \infty} \sqrt[n]{n} = \underline{\hspace{2cm}}$$

$$\lim_{x \rightarrow 0^+} x^\delta (\ln x)^k = \underline{\hspace{2cm}}$$

$$\lim_{x \rightarrow +\infty} x^k e^{-\delta x} \underline{\hspace{2cm}}$$

$$(\text{常数 } k > 0 \quad \delta > 0)$$

2 初等函数的导数公式

$$C' = \underline{\hspace{2cm}}$$

$$\int 0 dx = \underline{\hspace{2cm}}$$

$$(x^a)' = \underline{\hspace{2cm}}$$

$$\int ax^{a-1} dx = \underline{\hspace{2cm}}$$

$$(a^x)' = \underline{\hspace{2cm}}$$

$$\int a^x \ln a dx = \underline{\hspace{2cm}}$$

$$(e^x)' = \underline{\hspace{2cm}}$$

$$\int e^x dx = \underline{\hspace{2cm}}$$

$$(\log ax)' = \underline{\hspace{2cm}}$$

$$\int \frac{1}{x \ln a} dx = \underline{\hspace{2cm}}$$

$$(\ln x)' = \underline{\hspace{2cm}}$$

$$\int \frac{1}{x} dx = \underline{\hspace{2cm}}$$

$$(\sin x)' = \underline{\hspace{2cm}}$$

$$\int \cos x dx = \underline{\hspace{2cm}}$$

$$(\cos x)' = \underline{\hspace{2cm}}$$

$$\int -\sin x dx = \underline{\hspace{2cm}}$$

$$(\tan x)' = \underline{\hspace{2cm}}$$

$$\int \sec x^2 dx = \underline{\hspace{2cm}}$$

$$\cot x' = \underline{\hspace{2cm}}$$

$$-\int \csc x^2 dx = \underline{\hspace{2cm}}$$

$$(\sec x)' = \underline{\hspace{2cm}}$$

$$\int \sec x \tan x dx = \underline{\hspace{2cm}}$$

$$(\csc x)' = \underline{\hspace{2cm}}$$

$$-\int \csc x \cot x dx = \underline{\hspace{2cm}}$$

$$(\arcsin x)' = \underline{\hspace{2cm}}$$

$$\int \frac{1}{\sqrt{1-x^2}} dx = \underline{\hspace{2cm}}$$

$$(\arccos x)' = \underline{\hspace{2cm}}$$

$$-\int \frac{1}{\sqrt{1-x^2}} dx = \underline{\hspace{2cm}}$$

$$(\arctan x)' = \underline{\hspace{2cm}}$$

$$\int \frac{1}{1+x^2} dx = \underline{\hspace{2cm}}$$

$$(\operatorname{arccot} x)' = \underline{\hspace{2cm}}$$

$$-\int \frac{1}{1+x^2} dx = \underline{\hspace{2cm}}$$

$$\int \frac{1}{\cos^2 x} dx = \underline{\hspace{2cm}}$$

$$-\int \frac{1}{\sin^2 x} dx = \underline{\hspace{2cm}}$$