Test tex!

NUAA

Janurary 2021

Introduction

1. Let's begin with a formula $e^{i\pi} + 1 = 0$

$$e = \lim_{n \to \infty} \left(1 + \frac{1}{n}\right)^n = \lim_{n \to \infty} \frac{n}{\sqrt[n]{n!}}$$

2. we can do another:

$$e = \sum_{n=0}^{\infty} \frac{1}{n}.$$

3. we can also use continued fractions:

$$e = 2 + \cfrac{1}{1 + \cfrac{2}{2 + \cfrac{3}{3 + \cfrac{4}{4 + \cfrac{5}{5 + \ddots}}}}}$$
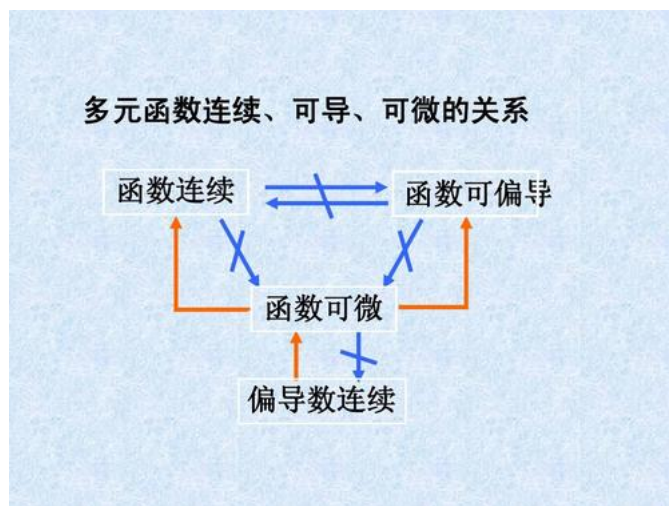
More formulas

$$\int_a^b f(x)dx$$

$$\iiiint f(x, y, z)dxdydz$$

$$\vec{v} = <v_1, v_2, v_3>$$

$$\vec{v} \cdot \vec{w}$$

$$\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix}$$

多元函数连续、可导、可微的关系

函数连续   函数可偏导

函数可微

偏导数连续

1.1 **A** *find the sum of* 34 *and* 126 *using a caculator.*

$$34 + 126 = \boxed{160}$$

B *Find the sum using long addition.*

$$
\begin{array}{ccccc}
 & & & 1 & 0 \\
 & & & 3 & 4 \\
+ & & 1 & 2 & 6 \\
\hline
 & & 1 & 6 & 0 \\
\end{array}
$$

1.2 *Evaluate the following definite integral:*

$$\int_0^3 2x\sqrt{x^2 + 4}\,dx$$

$$u = x^2 + 4 \quad du = 2x$$

$$\Rightarrow \quad \int_{0^2+4}^{3^2+4} \sqrt{u}\,du = \left. \frac{1}{2}u^{-\frac{1}{2}} \right|_4^{13}$$

$$\frac{1}{2\sqrt{13}} - \frac{1}{2\sqrt{4}} \approx \boxed{-0.1113}$$

2.1   *A Find the root of the quadratic equation $y = x^2 + 2x - 3$ using the quadratic formula.*

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$