

In[*]:= **Solve**[-1 + 2 x1 + 3 x2 == 0 && 1 + 2 x1^2 + 3 x2^2 == 2, {x1, x2}]
 |解方程

Out[*]=

$$\left\{ \left\{ x1 \rightarrow \frac{1}{5} (1 - \sqrt{6}), x2 \rightarrow \frac{1}{15} (3 + 2 \sqrt{6}) \right\}, \left\{ x1 \rightarrow \frac{1}{5} (1 + \sqrt{6}), x2 \rightarrow \frac{1}{15} (3 - 2 \sqrt{6}) \right\} \right\}$$

In[*]:= **N**[$\left\{ \left\{ x1 \rightarrow \frac{1}{5} (1 - \sqrt{6}), x2 \rightarrow \frac{1}{15} (3 + 2 \sqrt{6}) \right\}, \left\{ x1 \rightarrow \frac{1}{5} (1 + \sqrt{6}), x2 \rightarrow \frac{1}{15} (3 - 2 \sqrt{6}) \right\} \right\}$]
 |数值运算

Out[*]=

$$\{ \{ x1 \rightarrow -0.289898, x2 \rightarrow 0.526599 \}, \{ x1 \rightarrow 0.689898, x2 \rightarrow -0.126599 \} \}$$

In[*]:= $2 \left(\frac{1}{5} (1 + \sqrt{6}) \right)^3 + 3 \left(\frac{1}{15} (3 - 2 \sqrt{6}) \right)^3 - 1 \Big/ 3$

Out[*]=

$$\frac{1}{3} \left(-1 + \frac{(3 - 2 \sqrt{6})^3}{1125} + \frac{2}{125} (1 + \sqrt{6})^3 \right)$$

In[*]:= **f**[x_] := x / (4 + x^2);
h = 1 / 8;
T = h (f[0] + 2 **Sum**[f[k h], {k, 1, 7}] + f[1]) / 2
 |求和
S = h (f[0] + 2 **Sum**[f[k h], {k, 1, 7}] + 4 **Sum**[f[k h + h / 2], {k, 0, 7}] + f[1]) / 6
 |求和 |求和

Out[*]=

$$\frac{6713896380109}{60267095865808}$$

Out[*]=

$$\frac{2734465932149123313287802735072467}{24508573020656270950348253050003600}$$

In[*]:= **N**[S, 10]
 |数值运算

Out[*]=
 0.1115718133

In[*]:= **N**[T]
 |数值运算

Out[*]=
 0.111402

In[*]:= **NumberForm**[0.111402, 10]
 |数值近似

Out[*]//NumberForm=
 0.1114023545

In[*]:= **f[x_] := Sqrt[x];**
|平方根

h = 2;

T = h (f[1] + 2 Sum[f[1 + k h], {k, 1, 3}] + f[9]) / 2
|求和

S = h (f[1] + 2 Sum[f[1 + k h], {k, 1, 3}] + 4 Sum[f[1 + k h + h / 2], {k, 0, 3}] + f[9]) / 6
|求和 |求和

Out[*]=

$$4 + 2 \left(\sqrt{3} + \sqrt{5} + \sqrt{7} \right)$$

Out[*]=

$$\frac{1}{3} \left(4 + 4 \left(2 + 3 \sqrt{2} + \sqrt{6} \right) + 2 \left(\sqrt{3} + \sqrt{5} + \sqrt{7} \right) \right)$$

In[*]:= **N[S, 10]**
|数值运算

Out[*]=

17.33208730

In[*]:= **N[T, 10]**
|数值运算

Out[*]=

17.22774019

In[*]:= **Integrate[Exp[-x], {x, 0, 1}]**
|积分 |指数形式

Out[*]=

$$\frac{-1 + e}{e}$$

In[*]:= **N[$\frac{-1 + e}{e}$, 10]**
|数值运算

Out[*]=

0.6321205588

In[*]:= **(Exp[0] + 4 Exp[-1 / 2] + Exp[-1]) / 6**
|指数形式 |指数形式 |指数形式

Out[*]=

$$\frac{1}{6} \left(1 + \frac{1}{e} + \frac{4}{\sqrt{e}} \right)$$

In[*]:= **N[$\frac{1}{6} \left(1 + \frac{1}{e} + \frac{4}{\sqrt{e}} \right)$, 10]**
|数值运算

In[*]:= **0.63233368000366266933512031835436378021`10.**

Out[*]=

0.6323336800

In[*]:= **N[1 / (180 * 2^4), 10]**
|数值运算

Out[*]=

0.0003472222222

In[*]:= D[Exp[x^2], {x, 4}]

指数形式

Out[*]=

$$12 e^{x^2} + 48 e^{x^2} x^2 + 16 e^{x^2} x^4$$

In[*]:= Solve[1 / (12 n^2) (6 E) 10^5 == 1 / 2, n]

解方程

自然常数

Out[*]=

$$\left\{ \left\{ n \rightarrow -100 \sqrt{10 e} \right\}, \left\{ n \rightarrow 100 \sqrt{10 e} \right\} \right\}$$

In[*]:= N[{{n → -100 √10 e}, {n → 100 √10 e}}]

数值运算

Out[*]=

$$\left\{ \left\{ n \rightarrow -521.371 \right\}, \left\{ n \rightarrow 521.371 \right\} \right\}$$

In[*]:= Solve[(12 E + 48 E + 16 E) / (180 (2 n)^4) 10^5 == 1 / 2, n]

解方程

...

...

自然常数

Out[*]=

$$\left\{ \left\{ n \rightarrow -5 \sqrt{\frac{2}{3}} (19 e)^{1/4} \right\}, \left\{ n \rightarrow -5 i \sqrt{\frac{2}{3}} (19 e)^{1/4} \right\}, \right. \\ \left. \left\{ n \rightarrow 5 i \sqrt{\frac{2}{3}} (19 e)^{1/4} \right\}, \left\{ n \rightarrow 5 \sqrt{\frac{2}{3}} (19 e)^{1/4} \right\} \right\}$$

In[*]:= N[{{n → -5 √(2/3) (19 e)^(1/4)}, {n → -5 i √(2/3) (19 e)^(1/4)},

数值运算

$$\left\{ n \rightarrow 5 i \sqrt{\frac{2}{3}} (19 e)^{1/4}, \left\{ n \rightarrow 5 \sqrt{\frac{2}{3}} (19 e)^{1/4} \right\} \right\}]$$

Out[*]=

$$\left\{ \left\{ n \rightarrow -10.9443 \right\}, \left\{ n \rightarrow 0. - 10.9443 i \right\}, \left\{ n \rightarrow 0. + 10.9443 i \right\}, \left\{ n \rightarrow 10.9443 \right\} \right\}$$

In[7]:= rho[x_] := 1 / Sqrt[x];

平方根

omega[x_] := x^2 + a x + b;

eq1 = Integrate[1 / Sqrt[x] * (x^2 + a x + b), {x, 0, 1}]

积分

平方根

eq2 = Integrate[1 / Sqrt[x] * x * (x^2 + a x + b), {x, 0, 1}]

积分

平方根

Out[9]=

$$\frac{2}{5} + \frac{2 a}{3} + 2 b$$

Out[10]=

$$\frac{2}{7} + \frac{2 a}{5} + \frac{2 b}{3}$$

In[4]:= Solve[Integrate[1 / Sqrt[x] * (x^2 + a x + b), {x, 0, 1}] == 0 &&

解方程

积分

平方根

Integrate[1 / Sqrt[x] * x * (x^2 + a x + b), {x, 0, 1}] == 0, {a, b}]

积分

平方根

Out[4]=

$$\left\{ \left\{ a \rightarrow -\frac{6}{7}, b \rightarrow \frac{3}{35} \right\} \right\}$$

In[6]:= **Solve**[$x^2 - 6x/7 + 3/35 == 0$]

[解方程](#)

Out[6]= $\left\{ \left\{ x \rightarrow \frac{1}{35} (15 - 2\sqrt{30}) \right\}, \left\{ x \rightarrow \frac{1}{35} (15 + 2\sqrt{30}) \right\} \right\}$

In[12]:= **Integrate**[$x / \text{Sqrt}[x]$, { x , 0, 1}]

[积分](#)

[平方根](#)

Out[12]=

$$\frac{2}{3}$$

In[13]:= **Solve**[$a + b == 2 \&\& a * \frac{1}{35} (15 - 2\sqrt{30}) + b * \frac{1}{35} (15 + 2\sqrt{30}) == 2/3$]

[解方程](#)

Out[13]=

$\left\{ \left\{ a \rightarrow \frac{1}{18} (18 + \sqrt{30}), b \rightarrow \frac{1}{18} (18 - \sqrt{30}) \right\} \right\}$