Error, invalid input: diff received T(x).x, which is not valid for its 2nd argument

> del := diff(T(x).x$2) = 0;

Error, invalid input: diff received T(x).x, which is not valid for its 2nd argument

> restart;

> del := diff(T(x).x$2) = 0;

Error, invalid input: diff received T(x).x, which is not valid for its 2nd argument

> del := diff(T(x), x$2) = 0;

\[
\text{del} := \frac{d^2}{dx^2} T(x) = 0
\]  \hspace{1cm} (1)

> bc1a := T(a) = Ta; bc1b := T(b) = Tb;

\[
bc1a := T(a) = Ta
\]
\[
bc1b := T(b) = Tb
\] \hspace{1cm} (2)

> sl := dsolve({del, bc1a, bc1b}, T(x));

\[
sl := T(x) = \frac{(-Tb + Ta) x}{-b + a} - \frac{Ta b - a Tb}{-b + a}
\] \hspace{1cm} (3)

> a := 0; b := L; rhs(sl);

\[
a := 0
\]
\[
b := L
\]
\[
- \frac{(-Tb + Ta) x}{L} + Ta
\] \hspace{1cm} (4)

> Ta := 100; Tb := 0; L := 1; rhs(sl);

\[
Ta := 100
\]
\[
Tb := 0
\]
\[
L := 1
\]
\[
-100 x + 100
\] \hspace{1cm} (5)

> plot(rhs(sl), x = 0..L);
> restart;
> de2 := diff(T(x), x$2) = 0;

\[
\frac{d^2}{dx^2} T(x) = 0
\]  \hfill (6)

> bc2a := T(a) = Ta;

\[
b_c2a := T(a) = Ta
\]  \hfill (7)

> bc2b := -k \cdot D(T)(b) = qL;

\[
b_c2b := -k \cdot D(T)(b) = qL
\]  \hfill (8)

> s2 := dsolve({de2, bc2a, bc2b}, T(x));

\[
s_2 := T(x) = -\frac{qL x}{k} + \frac{Ta k + qL a}{k}
\]  \hfill (9)

> a := 0; b := L; s2;

\[
a := 0 \\
b := L
\]

\[
T(x) = -\frac{qL x}{k} + Ta
\]  \hfill (10)

> Ta := 1500; k := 40; qL := 2e6; s2;

\[
Ta := 1500
\]
\( \begin{align*} 
    k &:= 40 \\
    qL &:= 2 \times 10^6 \\
    T(x) &= -50000.00000 x + 1500.000000 \\
\end{align*} \)