> restart
> del := diff(T(x),x$2) = 0
> Error, invalid input: diff received T(x), which is not valid
> for its 2nd argument
> del := diff(T(x),x$2) = 0;
> Error, invalid input: diff received T(x), which is not valid
> for its 2nd argument
> restart;
> del := diff(T(x),x$2) = 0;
> Error, invalid input: diff received T(x), which is not valid
> for its 2nd argument
> del := diff(T(x),x$2) = 0;
> \[ \frac{d^2}{dx^2} T(x) = 0 \] (1)
> bcla := T(a) = Ta; bclb := T(b) = Tb;
> bcla := T(a) = Ta
> bclb := T(b) = Tb
> s1 := dsolve(\{del, bcla, bclb\}, T(x));
> \[ T(x) = \frac{(-Tb + Ta) x}{-b + a} - \frac{Tb - a Tb}{-b + a} \] (2)
> a := 0; b := L; rhs(s1);
> \[ a := 0 \]
> \[ b := L \]
> \[ \frac{(-Tb + Ta) x}{L} + Ta \] (3)
> Ta := 100; Tb := 0; L := 1; rhs(s1);
> \[ Ta := 100 \]
> \[ Tb := 0 \]
> \[ L := 1 \]
> \[ -100 x + 100 \] (4)
> plot(rhs(s1), x = 0 .. L);
restart;

\[ de2 := \text{diff}(T(x), x$2$) = 0; \]

\[ de2 := \frac{d^2}{dx^2} T(x) = 0 \] \hspace{1cm} (6)

\[ bc2a := T(a) = T_a; \]

\[ bc2a := T(a) = T_a \] \hspace{1cm} (7)

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

\[ bc2b := -k \ D(T)(b) = qL \] \hspace{1cm} (8)

\[ s2 := \text{dsolve}\{ \{ de2, bc2a, bc2b \}, T(x) \}; \]

\[ s2 := T(x) = -\frac{qL}{k} x + \frac{T_a k + qL a}{k} \] \hspace{1cm} (9)

\[ a := 0; b := L; s2; \]

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

\[ T(x) = -\frac{qL}{k} x + T_a \] \hspace{1cm} (10)

\[ Ta := 1500; k := 40; qL := 2e6; s2; \]

\[ Ta := 1500 \]
\begin{align*}
  k &:= 40 \\
  qL &:= 2 \cdot 10^6 \\
  T(x) &= -50000.00000 \; x + 1500.00000 \\
\end{align*}

\texttt{plot(rhs(s2), x = 0 .. 0.025);}

\begin{align*}
  \text{restart}; \\
  \text{de1} &:= -k \cdot \text{diff}(T(x), x) = QdotV; \\
  \text{de1} &:= -k \left( \frac{d^2}{dx^2} T(x) \right) = QdotV \\
  bcl_a &:= D(T)(0) = 0 \\
  \text{bc1a} &:= D(T)(0) = 0 \\
  bcl_b &:= T(L) = 0; \\
  \text{bc1b} &:= T(L) = 0 \\
  s1 &:= \text{dsolve}\{(\text{de1}, \text{bc1a, bc1b}), T(x)\}; \\
  s1 &:= T(x) = -\frac{1}{2} \frac{QdotV x^2}{k} + \frac{1}{2} \frac{QdotV L^2}{k} \\
  L &:= 1; k := 10; QdotV := 1e4; s1 \\
  L &:= 1
\end{align*}
\( k := 10 \)
\( QdotV := 10000. \)
\( T(x) = -500.0000000 \cdot x^2 + 500.0000000 \)

\[ \text{plot}(\text{rhs}(s1), x = -1..1); \]