

# Using \Input

This simple example shows how `\Input` can be used to include other LaTeX sources within the host source. Note the use of nested `\Input`'s. The merged file can be inspected by running

```
merge-src.py -i example-10.tex -o merged.tex
```

from the command line. The merged file will be named `merged.tex`.

## Source of example-10.tex

```
\Input{./example-10/limits/limits.tex}  
\Input{./example-10/calculus/calculus.tex}
```

## Source of example-10/limits/limits.tex

```
\section*{Limits}  
  
\begin{python}  
  
    from sympy import *  
    a, n, x, dx = symbols('a n x dx')  
    ans = limit(sin(4*x)/x,x,0)           # py (ans.301,ans)  
    ans = limit(2**x/x,x,oo)              # py (ans.302,ans)  
    ans = limit(((x+dx)**2 - x**2)/dx, dx,0) # py (ans.303,ans)  
    ans = limit((4*n + 1)/(3*n - 1),n,oo)  # py (ans.304,ans)  
    ans = limit((1+(a/n))**n,n,oo)        # py (ans.305,ans)  
  
\end{python}  
  
\begin{align*}  
    &\backslash\py*{ans.301}\\  
    &\backslash\py*{ans.302}\\  
    &\backslash\py*{ans.303}\\  
    &\backslash\py*{ans.304}\\  
    &\backslash\py*{ans.305}  
\end{align*}
```

## Source of example-10/calculus/calculus.tex

```
\Input{./example-10/calculus/derivs/derivs.tex}  
\Input{./example-10/calculus/integrals/integrals.tex}
```

## Source of example-10/calculus/derivs/derivs.tex

```
\section*{Differentiation}  
  
\begin{python}  
  
    ans = diff(x*sin(x),x)                                # py (ans.501,ans)  
    ans = diff(x*sin(x),x).subs(x,pi/4)                   # py (ans.502,ans)  
  
\end{python}  
  
\begin{align*}  
    &\backslash\py*{ans.501}\\  
    &\backslash\py*{ans.502}  
\end{align*}
```

## Source of example-10/calculus/integrals/integrals.tex

```
\section*{Integration}  
  
\begin{python}  
  
    a, b, x, y = symbols('a b x y')  
    ans = integrate(2*sin(x)**2, (x,a,b))                 # py (ans.503,ans)  
    ans = Integral(2*exp(-x**2), (x,0,oo))                # py (lhs.504,ans)  
    ans = ans.doit()                                       # py (ans.504,ans)  
    ans = Integral(Integral(x**2 + y**2, (y,0,x)), (x,0,1)) # py (lhs.505,ans)  
    ans = ans.doit()                                       # py (ans.505,ans)  
  
\end{python}  
  
\begin{align*}  
    &\backslash\py*{ans.503}\\  
    &\backslash\py{lhs.504}&=\backslash\Py{ans.504}\\
```

```

\py{lhs.505}&=\Py{ans.505}
\end{align*}

```

# Limits

```
from sympy import *
a, n, x, dx = symbols('a n x dx')
ans = limit(sin(4*x)/x,x,0)           # py (ans.301,ans)
ans = limit(2**x/x,x,oo)              # py (ans.302,ans)
ans = limit(((x+dx)**2 - x**2)/dx, dx,0) # py (ans.303,ans)
ans = limit((4*n + 1)/(3*n - 1),n,oo)  # py (ans.304,ans)
ans = limit((1+(a/n))**n,n,oo)         # py (ans.305,ans)
```

ans.301 := (??)

ans.302 := (??)

ans.303 := (??)

ans.304 := (??)

ans.305 := (??)

# Differentiation

```
ans = diff(x*sin(x),x)               # py (ans.501,ans)
ans = diff(x*sin(x),x).subs(x,pi/4) # py (ans.502,ans)
```

ans.501 := (??)

ans.502 := (??)

# Integration

```
a, b, x, y = symbols('a b x y')
ans = integrate(2*sin(x)**2, (x,a,b)) # py (ans.503,ans)
ans = Integral(2*exp(-x**2), (x,0,oo)) # py (lhs.504,ans)
ans = ans.doit()                       # py (ans.504,ans)
```

```
ans = Integral(Integral(x**2 + y**2, (y,0,x)), (x,0,1)) # py (lhs.505,ans)
ans = ans.doit() # py (ans.505,ans)
```

ans.503 := (??)

(??) = (??)

(ans.504)

(??) = (??)

(ans.505)