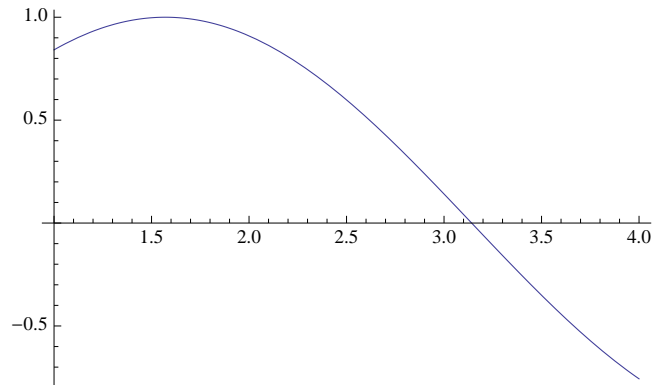

Parallel Trapezoid Rule ©matsuda@symbolics.jp

```
a = 1; b = 4;
```

```
Plot[Sin[x], {x, a, b}]
```



■ serial version with a mathematical formula

$$\int_a^b \sin[x] \, dx // N$$

```
1.19395
```

■ parallel version with computing trapezoids

```
a = 1; b = 4; n = 1000;
h = (b - a) / n;
n = n / $NProc;
a = a + $IdProc * n * h;
b = a + n * h;

trap[a_, b_, n_, h_] := Module[{x, s, integral},
  integral = (Sin[a] + Sin[b]) / 2;
  x = a;
  Do[
    x = x + h; integral = integral + Sin[x], {i, 1, n - 1}];
  integral = integral * h; integral]

p = trap[a, b, n, h];
sum = p;
If[$IdProc == 0,
  Do[
    mpiRecv[v, i, 99, mpiCommWorld];
    sum = sum + v, {i, 1, $NProc - 1}],
  (* else *)
  mpiSend[p, 0, 99, mpiCommWorld]]
If[$IdProc == 0, Print[N[sum]]]
```

```
1.19395
```