$$\int_0^{\pi} \sin^2 x dx = \int_0^{\pi} \frac{1-\cos 2x}{2} dx = \left[\frac{1}{2}x - \frac{1}{4}\sin 2x\right]_0^{\pi} = \frac{\pi}{2}$$

```
f=sin(x)^2
f.integral(x,0,pi)
```

```
1/2*pi
```

```
integral(sin(x)^2,x,0,pi)
```

```
1/2*pi
```

수치적분

$$\int_0^1 \frac{\sin x}{x} dx$$

```
f=sin(x)/x
integral(f,x);integral_numerical(sin(x)/x, 0, 1)
```

```
-1/2*I*Ei(I*x) + 1/2*I*Ei(-I*x)
(0.9460830703671829, 1.0503632079297086e-14)
```

$$\int_0^{\infty} e^{-x^2} dx$$

```
g = integrate(exp(-x**2), x, 0, infinity)
g, g.n()
```

```
(1/2*sqrt(pi), 0.886226925452758)
```

```
approx = integral_numerical(exp(-x**2), 0, infinity)
approx
```

```
(0.886226925452757, 1.7147744320162414e-08)
```

```
approx[0]-g.n()
```

```
-8.88178419700125e-16
```