

```
> int( x*exp(-I*s*x), x=0..1);
```

$$\frac{Ie^{-Is}s + e^{-Is} - 1}{s^2}$$

(1)

```
> simplify(%);
```

$$\frac{Ie^{-Is}s + e^{-Is} - 1}{s^2}$$

(2)

```
> int(x*sin(w*x), x=0..1);
```

$$-\frac{w \cos(w) - \sin(w)}{w^2}$$

(3)

```
> simplify(%);
```

$$\frac{-w \cos(w) + \sin(w)}{w^2}$$

(4)

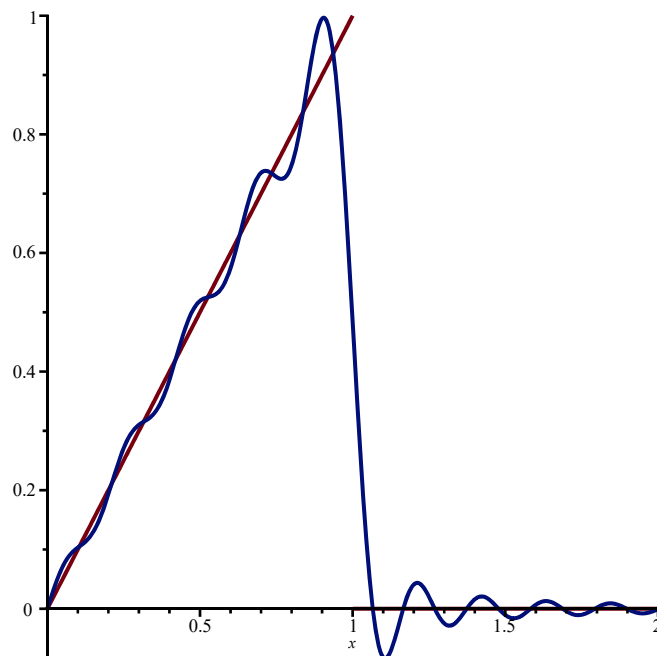
```
> u := (x,N) -> (2/Pi)*int( sin(x*s)*(-s*cos(s)+sin(s))/s^2, s=0..N);
```

$$u := (x, N) \mapsto \frac{2 \cdot \left(\int_0^N \frac{\sin(x \cdot s) \cdot (-s \cdot \cos(s) + \sin(s))}{s^2} ds \right)}{\pi}$$

(5)

```
> with(plots):
```

```
> plot({u(x,30), v(x)}, x=0..2, discontinuous=true);
```



```
> v := x -> x*(Heaviside(x)-Heaviside(x-1));
```

$$v := x \mapsto x \cdot (\text{Heaviside}(x) - \text{Heaviside}(x - 1))$$

(6)

```
> ?plot
```