

```

> A:=n->(2/L)*int(f(x)*cos(n*Pi*x/L),x=0..L);

```

$$A := n \rightarrow \frac{2 \left(\int_0^L f(x) \cos\left(\frac{n\pi x}{L}\right) dx \right)}{L}$$

(4)

```

> A0:=(1/L)*int(f(x),x=0..L);

```

$$A0 := \frac{1}{2}$$

(5)

```

> # Truncated cosine series T(x,n)

```

```

> T:=(x,n)->A0+sum(A(k)*cos(k*Pi*x/L),k=1..n);

```

$$T := (x, n) \rightarrow A0 + \sum_{k=1}^n A(k) \cos\left(\frac{k\pi x}{L}\right)$$

(6)

```

> plot(T(x,50),x=-5*L..5*L);

```