

```

[> restart;
[> with(plots) :
[>
[> f1 := x → -x;#1

```

$$f1 := x \rightarrow -x$$

(1)

```

[>

```

$$\frac{1}{2} \pi^2$$

(2)

```

[> q1 := plot(f1(x), x=-Pi..0) :
[>

```

```

[> f2 := x → 2·x;#1

```

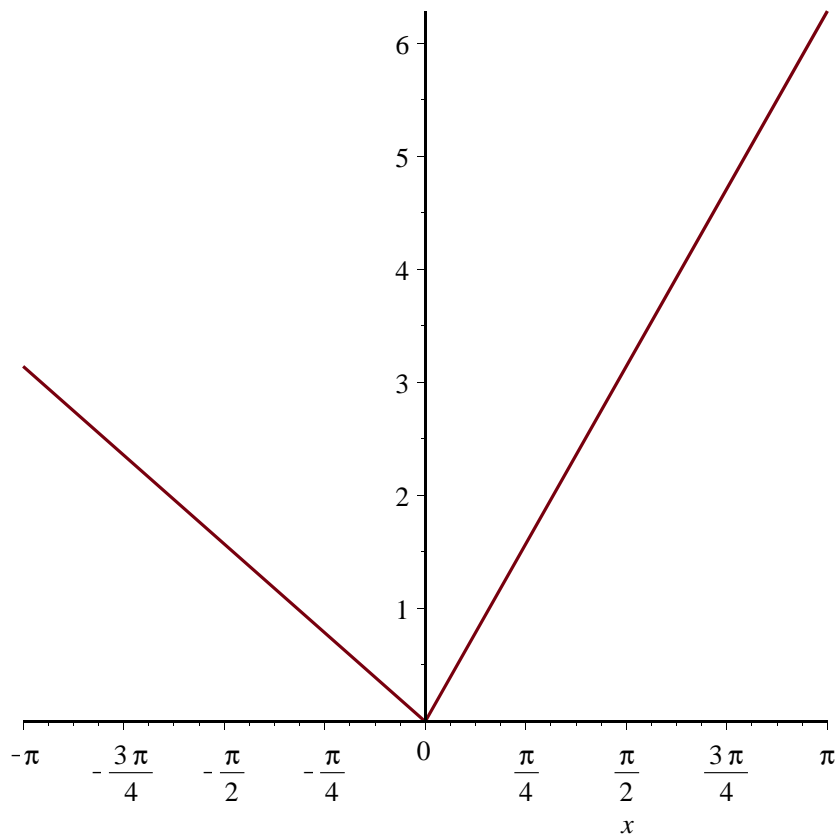
$$f2 := x \rightarrow 2x$$

(3)

```

[>
[> q2 := plot(f2(x), x=0..Pi) :
[> display(q1, q2);

```



```

[> N := 5;

```

$$N := 5$$

(4)

```

> a0 := evalf  $\left( \frac{1}{\text{Pi}} \cdot \left( \int_{-\text{Pi}}^0 f1(x) \, dx + \int_0^{\text{Pi}} f2(x) \, dx \right) \right);$ 
a0 := 4.712388981

```

```

> for n from 1 to N do
  a[n] := evalf  $\left( \frac{1}{\text{Pi}} \cdot \left( \int_{-\text{Pi}}^0 f1(x) \cdot \cos(n \cdot x) \, dx + \int_0^{\text{Pi}} f2(x) \cdot \cos(n \cdot x) \, dx \right) \right);$ 
  b[n] := evalf  $\left( \frac{1}{\text{Pi}} \cdot \left( \int_{-\text{Pi}}^0 f1(x) \cdot \sin(n \cdot x) \, dx + \int_0^{\text{Pi}} f2(x) \cdot \sin(n \cdot x) \, dx \right) \right);$ 

```

```
end do;
```

```

> n := 'n';
n := n

```

```

> f := a0 +  $\sum_{n=1}^N (a[n] \cdot \cos(n \cdot x) + b[n] \cdot \sin(n \cdot x))$ ;

```

```

> plot(f, x = -Pi .. Pi);

```

