

Funktionsgraph

```
1  from tkinter import *
2  from math import *

3  def fkt(x):
4      return x**2

5  def zeichnen():
6      dx = 1/200
7      for i in range(4000):
8          x = i*dx - 10
9          y = fkt(x)
10         flaeche.create_line(x*20 + 200, 200 - y*20, x*20 + 201, 200 - y*20)

11  fenster = Tk()
12  flaeche = Canvas(fenster, width = 400, height = 400)
13  flaeche.pack()

14  flaeche.create_line(0, 200, 400, 200)
15  flaeche.create_line(200, 0, 200, 400)
16  zeichnen()
```

Verbesserungen

```
17  def zeichnen():
18      dx = 1/200
19      for i in range(4000):
20          x1 = i*dx - 10
21          y1 = fkt(x1)
22          x2 = (i+1)*dx - 10
23          y2 = fkt(x2)
24          flaeche.create_line(x1*20 + 200, 200 - y1*20, x2*20 + 200, 200 - y2*20)

25  for n in range(-10, 11):
26      flaeche.create_line(n*20 + 200, 198, n*20 + 200, 202)
27      flaeche.create_line(198, 200 - n*20, 202, 200 - n*20)
```

Funktionsgraph

```
1  from tkinter import *
2  from math import *

3  def zeichnen( ):
4      s = eingabe.get( )
5      dx = 1/200
6      for i in range(4000):
7          x1 = i*dx - 10
8          x = x1
9          y1 = eval(s)
10         x2 = (i+1)*dx - 10
11         x = x2
12         y2 = eval(s)
13         flaeche.create_line(x1*20 + 200, 200 - y1*20, x2*20 + 200, 200 - y2*20)

14  fenster = Tk( )
15  flaeche = Canvas(fenster, width = 400, height = 400)
16  eingabe = Entry(fenster, width = 40)
17  label = Label(fenster, text = 'f(x) = ')
18  button = Button(fenster, text = 'zeichnen', command = zeichnen)

19  flaeche.pack( )
20  label.pack(side = LEFT)
21  eingabe.pack(side = LEFT)
22  button.pack(side = RIGHT, pady = 10, padx = 30)

23  flaeche.create_line(0, 200, 400, 200)
24  flaeche.create_line(200, 0, 200, 400)

25  for n in range(-10, 11):
26      flaeche.create_line(n*20 + 200, 198, n*20 + 200, 202)
27      flaeche.create_line(198, 200 - n*20, 202, 200 - n*20)
```

Funktionsgraph

```
from tkinter import *
from math import *

def fkt(x):
    return x**2

def zeichnen():
    dx = 1/200
    for i in range(4000):
        x = i*dx - 10
        y = fkt(x)
        flaeche.create_line(x*20 + 200, 200 - y*20, x*20 + 201, 200 - y*20)

fenster = Tk()
flaeche = Canvas(fenster, width = 400, height = 400)
flaeche.pack()

flaeche.create_line(0, 200, 400, 200)
flaeche.create_line(200, 0, 200, 400)
zeichnen()
```

Verbesserungen

```
def zeichnen():
    dx = 1/200
    for i in range(4000):
        x1 = i*dx - 10
        y1 = fkt(x1)
        x2 = (i+1)*dx - 10
        y2 = fkt(x2)
        flaeche.create_line(x1*20 + 200, 200 - y1*20, x2*20 + 200, 200 - y2*20)

for n in range(-10, 11):
    flaeche.create_line(n*20 + 200, 198, n*20 + 200, 202)
    flaeche.create_line(198, 200 - n*20, 202, 200 - n*20)
```

Funktionsgraph

```
from tkinter import *
from math import *

def zeichnen():
    s = eingabe.get()
    dx = 1/200
    for i in range(4000):
        x1 = i*dx - 10
        x = x1
        y1 = eval(s)
        x2 = (i+1)*dx - 10
        x = x2
        y2 = eval(s)
        flaeche.create_line(x1*20 + 200, 200 - y1*20, x2*20 + 200, 200 - y2*20)

fenster = Tk()
flaeche = Canvas(fenster, width = 400, height = 400)
eingabe = Entry(fenster, width = 40)
label = Label(fenster, text = 'f(x) = ')
button = Button(fenster, text = 'zeichnen', command = zeichnen)

flaeche.pack()
label.pack(side = LEFT)
eingabe.pack(side = LEFT)
button.pack(side = RIGHT, pady = 10, padx = 30)

flaeche.create_line(0, 200, 400, 200)
flaeche.create_line(200, 0, 200, 400)

for n in range(-10, 11):
    flaeche.create_line(n*20 + 200, 198, n*20 + 200, 202)
    flaeche.create_line(198, 200 - n*20, 202, 200 - n*20)
```