# **Dynamic Calculator**

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## **Main Features**

* Can solve math problems with +, -, ×, ÷, and brackets ( ).
* Understands bracket multiplication like 3(2+1).
* Works with both whole numbers and decimal numbers.
* Very short and simple, written for beginners.

**Code:**

def calc(expr: str) -> float:

expr = expr.replace("×", "\*").replace("÷", "/")

while "(" in expr:

start = expr.rfind("(")

end = expr.find(")", start)

val = calc(expr[start+1:end])

expr = expr[:start] + str(val) + expr[end+1:]

stack = []

num = ""

for ch in expr:

if ch.isdigit() or ch == ".":

num += ch

else:

if num:

stack.append(float(num))

num = ""

stack.append(ch)

if num:

stack.append(float(num))

i = 0

while i < len(stack):

if stack[i] in ("\*", "/"):

a, op, b = stack[i-1:i+2]

val = a \* b if op == "\*" else a / b

stack[i-1:i+2] = [val]

i -= 1

else:

i += 1

i = 0

while i < len(stack):

if stack[i] in ("+", "-"):

a, op, b = stack[i-1:i+2]

val = a + b if op == "+" else a - b

stack[i-1:i+2] = [val]

i -= 1

else:

i += 1

return stack[0]

expr1 = input("Enter first expression: ")

print("= ", calc(expr1))

expr2 = input("Enter second expression: ")

print("= ", calc(expr2))

**Explanation:**

**1. Loop (while True)**

* The program runs inside an infinite loop.
* It keeps asking the user for new math problems.
* If the user types **"stop"**, the loop ends and the program quits.

### **2. Fixing Symbols**

* Users might type × or ÷ instead of \* and /.
* The program **replaces**:  
  + × → \*
  + ÷ → /
* This ensures the expression matches Python’s operators.

### **3. Handling Bracket Multiplication**

* Cases like )( are turned into )\*( so (2)(3) becomes (2)\*(3).
* Similarly, if a number is directly before a bracket (e.g., 2(3+1)), it changes to 2\*(3+1).
* This allows Python to correctly interpret multiplication with brackets.

### **4. Calculation**

* Once the expression is cleaned, the program evaluates it.
* The result is displayed immediately.