规格说明：输入两个≤80 的整数，求和，如果和≤100，输出和；如果不满足上述条件，输出-1。

Z 表示：

Add

$a?, b? : Z$

$Sum! : Z$

$$(0 \le a? \le 80 \land 0 \le b? \le 80 \land a? + b? \le 100 \land sum! = a? + b?) \lor$$
$$(a? < 0 \lor a? > 80 \lor b? < 0 \lor b? > 80 \lor (0 \le a? \le 80 \land 0 \le b? \le 80 \land a? + b? > 100) \land sum! = -1)$$

手工转换成析取范式：

$$(0 \le a? \le 80 \land 0 \le b? \le 80 \land a? + b? \le 100 \land sum! = a? + b?) \lor$$
$$(a? < 0 \land sum! = -1) \lor$$
$$(a? > 80 \land sum! = -1) \lor$$
$$(b? < 0 \land sum! = -1) \lor$$
$$(a? > 80 \land sum! = -1) \lor$$
$$(0 \le a? \le 80 \land 0 \le b? \le 80 \land a? + b? > 100 \land sum! = -1)$$

将 Z 规格转换为 Z3：

```
(declare-const a Int)
(declare-const b Int)
(declare-const sum Int)

(assert (or (and (<= a 80) (<= 0 a) (<= b 80) (<= 0 b) (<= (+ a b) 100)
            (= (+ a b) sum))
            (and (or (< a 0) (> a 80) (< b 0) (> b 80) (and (<= a 80) (<= 0 a) (<= b 80)
(<= 0 b) (> (+ a b) 100))) (= sum -1))
            ))
```

Z3 生成 DNF：

```
---------DNF----------
(goals
(goal
  (<= a 80)
  (<= 0 a)
  (<= b 80)
  (<= 0 b)
  (<= (+ a b) 100)
  (= (+ a b) sum)
```

```
  :precision precise :depth 2)
(goal
  (not (<= 0 a))
  (= sum (- 1))
  :precision precise :depth 3)
(goal
  (not (<= a 80))
  (= sum (- 1))
  :precision precise :depth 3)
(goal
  (not (<= 0 b))
  (= sum (- 1))
  :precision precise :depth 3)
(goal
  (not (<= b 80))
  (= sum (- 1))
  :precision precise :depth 3)
(goal
  (<= a 80)
  (= sum (- 1))
  (<= 0 a)
  (<= b 80)
  (<= 0 b)
  (not (<= (+ a b) 100))
  :precision precise :depth 3)
)
```