# HW5

## Description

A vending machine can give change using coins of 50, 10, 5, and 1.
Given the **paid** amount, the **price**, and the **inventory** of each coin, make change using a **greedy order 50→10→5→1**.

- **If change is possible**: print the **total change amount**, the **number of coins actually given for each denomination**, and the **leftover inventory** after giving change.
- **If change is not possible**: print only `INSUFFICIENT COINS`.

## Input Format

One line with six integers:

```
paid price c50 c10 c5 c1
```

## Output Format

### Success

Print exactly:

```
OK
change: X
coins: 50 x a, 10 x b, 5 x c, 1 x d
leftover: 50 x C50, 10 x C10, 5 x C5, 1 x C1
```

Where:

- `X = paid - price`

- `a,b,c,d` are the numbers of coins given for 50, 10, 5, and 1
- `C50,C10,C5,C1` are the remaining inventories after giving change

### Failure

Print exactly:

```
INSUFFICIENT COINS
```

## Constraints & Requirements

- Use **integer variables only** (e.g., `c50, c10, c5, c1` and related counters).
- You **must** process denominations in the order **50→10→5→1** .
- Inputs are guaranteed valid ( `paid ≥ price` ) .
- Zero change ( `paid == price` ) is allowed.

## Examples

1. 

   Input

   ```
   200 123 2 3 1 4
   ```

   Output

   ```
   OK
   change: 77
   coins: 50 x 1, 10 x 2, 5 x 1, 1 x 2
   leftover: 50 x 1, 10 x 1, 5 x 0, 1 x 2
   ```

2. 

   Input

   ```

   ```

```
200 120 0 1 0 3
```

Output

```
INSUFFICIENT COINS
```

3.

Input :

```
100 100 3 2 1 7
```

Output :

```
OK
change: 0
coins: 50 x 0, 10 x 0, 5 x 0, 1 x 0
leftover: 50 x 3, 10 x 2, 5 x 1, 1 x 7
```

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## 敘述

販賣機可找零的幣值為 **50、10、5、1** 元。給定**實付金額**、**售價**，以及各幣值**庫存**，請以**最大面額優先（50→10→5→1）**進行找零。

- **能找零**：輸出「找零金額」「實際找出的各面額數量」與「找零後剩餘庫存」。
- **不能找零**：只輸出 `INSUFFICIENT COINS`。

## 輸入格式

單行共 6 個整數：

```
paid price c50 c10 c5 c1
```

# 輸出格式

### 成功找零時（四行，格式需完全一致）

```
OK
change: X
coins: 50 x a, 10 x b, 5 x c, 1 x d
leftover: 50 x C50, 10 x C10, 5 x C5, 1 x C1
```

- `X = paid - price`（找零金額）
- `a, b, c, d`：實際找出的 50、10、5、1 元枚數
- `C50, C10, C5, C1`：找零後各面額剩餘庫存

### 無法找零時（一行）

```
INSUFFICIENT COINS
```

# 限制與要求（重點考 while/for）

1. 只可使用**整數變數**（如 `c50, c10, c5, c1` 及需求/結果變數）
2. 必須依序以 **50→10→5→1** 逐面額找零
3. 僅需考慮合法輸入（`paid ≥ price`）
4. 允許剛好不需找零（差額為 0）

# 範例

### 範例 1

#### 輸入

```
200 123 2 3 1 4
```

### 輸出

```
OK
change: 77
coins: 50 x 1, 10 x 2, 5 x 1, 1 x 2
leftover: 50 x 1, 10 x 1, 5 x 0, 1 x 2
```

## 範例 2

### 輸入

```
200 120 0 1 0 3
```

### 輸出

```
INSUFFICIENT COINS
```

## 範例 3

### 輸入

```
100 100 3 2 1 7
```

### 輸出

```
OK
change: 0
coins: 50 x 0, 10 x 0, 5 x 0, 1 x 0
leftover: 50 x 3, 10 x 2, 5 x 1, 1 x 7
```