2_戰力指數 (War Power Analysis)

(2分 /8分)

時間限制: 1 second
記憶體限制: 256 MB

題目敘述

「富國強兵」一詞源於中國古代的典故，出自《左傳》中的一段記載。這段典故發生在戰國時期，當時晉國的國君晉文公想要實行內政改革，以強化國家的實力。他向參謀諸侯問策問道：「寡人欲富國，將何以使之？」其中一位參謀對他說：「富國之道，先強兵也。」這句話即為「富國強兵」的來源。

這句話的含義是，一個國家要想繁榮富強，首先必須建立強大的軍事實力。只有具備足夠的軍事力量，國家才能保護自身的疆土、維護國家的利益，並在外交與戰爭中取得優勢。

現在的你身兼大任，要經營一個有 n 個角色的兵隊。第 i 個角色的戰力為 $a_i \cdot x + b_i$，其中 x 為等級數且預設為 1 級，每升一級需要 c_i 的金幣。現在你擁有 w 元，試問這個兵隊的最大戰力值為何？

輸入格式

第一行有兩個正整數 n、w，代表這個兵隊有 n 個角色，以及你所擁有的金幣數量。

接下來的 n 行，每行有三個正整數 a_i、b_i、c_i，如題意所述。

輸出格式

輸出一個正整數，代表兵隊最大的戰力值。

資料範圍

- $1 \leq n \leq 1000$。
- $1 \leq w \leq 10^5$。
- $1 \leq a_i, b_i, c_i \leq 1000$（$1 \leq i \leq n$）。

子任務

- 子任務 1, $n \leq 10$。
- 子任務 2, 無額外限制。

測試範例

輸入範例 1

```
3 10
1 2 3
3 4 1
2 3 1
```

輸出範例 1

```
45
```

範例說明

在範例 1 中，把所有的金幣都給第二個角色升級，所以三個角色的等級和等級分別如下：

- 第一個角色 1 等，戰力為 $1 \cdot 1 + 2 = 3$
- 第二個角色 11 等，戰力為 $3 \cdot 11 + 4 = 37$
- 第三個角色 1 等，戰力為 $2 \cdot 1 + 3 = 5$

總戰力為 $3 + 37 + 5 = 45$。

2_War Power Analysis

(2 Points /8 Points)

Time Limit: 1 second
Memory Limit: 256 MB

Description

The phrase "富國強兵" (Fùguó qiángbīng) originates from an ancient Chinese anecdote recorded in the historical text "左傳" (Zuo Zhuan). This anecdote took place during the Warring States period when the ruler of the State of Jin, Duke Wen of Jin, sought to implement domestic reforms to strengthen the country's power. He asked his advisers for strategies, saying, "I desire to make the state prosperous. How can I achieve it?" One of the advisers replied, "The way to make the state prosperous is to first strengthen the military." This phrase, "富國強兵," translates to "enrich the country and strengthen the military" and has since become a common saying in China.

The meaning behind this phrase is that for a country to prosper and be strong, it must first establish a powerful military. Only with sufficient military strength can a country protect its territory, safeguard its interests, and gain advantages in diplomacy and warfare.

Now, you have the significant responsibility of managing an army consisting of n characters. The power of the i-th character is given by $a_i \cdot x + b_i$, where x represents the character's level (initially set at level 1), and each level-up requires c_i gold coins. You have a total of w gold coins. Your task is to determine the maximum power index that can be achieved for the army.

Input Format

The first line contains two positive integers n and w, representing the number of characters in the army and the amount of gold coins you possess, respectively.

The following n lines each contain three positive integers a_i, b_i, and c_i as described in the problem statement.

Output Format

Output a single positive integer, representing the maximum power of the army.

Constraints

- $1 \leq n \leq 1000$.
- $1 \leq w \leq 10^5$.
- $1 \leq a_i, b_i, c_i \leq 1000$ ($1 \leq i \leq n$).

Subtask

- Subtask 1, $n \leq 10$.
- Subtask 2, No additional constraints.

Test Cases

Input 1

```
3 10
1 2 3
3 4 1
2 3 1
```

Output 1

```
45
```

Illustrations

In Example 1, by allocating all the gold coins to the second character for upgrades, the levels and power indices of the three characters are as follows:

- The first character is at level 1, with a power index of $1 \cdot 1 + 2 = 3$.
- The second character is at level 11, with a power index of $3 \cdot 11 + 4 = 37$.
- The third character is at level 1, with a power index of $2 \cdot 1 + 3 = 5$.

The total power is $3 + 37 + 5 = 45$.