# Exercise: Intro and Basic Syntax

Problems for exercises and homework for the ["C# Fundamentals" course @ SoftUni](https://softuni.bg/trainings/2363/csharp-fundamentals-may-2019)  
You can check your solutions in [Judge](https://judge.softuni.bg/Contests/1204)

## Ages

Write a program that determines whether based on the given age a person is: baby, child, teenager, adult, elder. The bounders are:

* **0-2 – baby;**
* **3-13 – child;**
* **14-19 – teenager;**
* **20-65 – adult;**
* **>=66 – elder;**
* All the values are **inclusive**.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 20 | adult |
| 1 | baby |
| 100 | elder |

## Divison

You will be given an integer and you have to print on the console whether that number is divisible by the following numbers: 2, 3, 6, 7, 10.

You should **always take the bigger division**.

If the number is divisible by both **2** and **3** it is also divisible by **6** and you should print only the division by 6. If a number is divisible by **2** it is sometimes also divisible by **10** and you should print the division by 10. If the number is not divisible by any of the given numbers print “**Not divisible”.** Otherwise print “**The number is divisible by {number}**”.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 30 | The number is divisible by 10 |
| 15 | The number is divisible by 3 |
| 12 | The number is divisible by 6 |
| 1643 | Not divisible |

## Vacation - 83точки! Не знам защо!

You are given a group of people, type of the group, on which day of the week they are going to stay.

Based on that information calculate how much they have to pay and print that price on the console.

Use the table below.

In each cell is the price for a **single person**.

The output should look like that: “**Total price: {price}**”.

The price should be formatted to the second decimal point.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Friday** | **Saturday** | **Sunday** |
| **Students** | 8.45 | 9.80 | 10.46 |
| **Business** | 10.90 | 15.60 | 16 |
| **Regular** | 15 | 20 | 22.50 |

There are also discounts based on some conditions:

* **Students –** if the group is bigger than or equal to 30 people you should reduce the **total** price by 15%
* **Business –** if the group is bigger than or equal to 100 people **10** of them can stay **for free.**
* **Regular –** if the group is bigger than or equal to 10 and less than or equal to 20 reduce the **total** price by 5%

**You should reduce the prices in that EXACT order**

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 30  Students  Sunday | Total price: 266.73 |
| 40  Regular  Saturday | Total price: 800.00 |

## Print and Sum

Write a program to display numbers from given start to given end and their sum.

All the numbers will be integers.

On the first line you will receive the start, on the second the end.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 5  10 | 5 6 7 8 9 10  Sum: 45 |
| 0  26 | 0 1 2 … 26  Sum: 351 |
| 50  60 | 50 51 52 53 54 55 56 57 58 59 60  Sum: 605 |

## Login

You will be given a string representing a username.

The password will be that username reversed.

Until you receive the correct password print on the console “**Incorrect password. Try again.**”.

When you receive the correct password print “**User {username} logged in.**” However on the fourth try if the password is still not correct print “**User {username} blocked!**” and end the program.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| Acer  login  go  let me in  recA | Incorrect password. Try again.  Incorrect password. Try again.  Incorrect password. Try again.  User Acer logged in. |
| momo  omom | User momo logged in. |
| sunny  rainy  cloudy  sunny  not sunny | Incorrect password. Try again.  Incorrect password. Try again.  Incorrect password. Try again.  User sunny blocked! |

## Strong Number – проблеми с char to int

Write a program to check if a given number is a strong number or not. A number is strong if the sum of the Factorial of each digit is equal to the number. For example 145 is a strong number, because **1! + 4! + 5! = 145.** Print "**yes**" if the number is strong and “**no**” if the number is not strong.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 2 | yes |
| 3451 | no |
| 40585 | yes |

## Vending Machine - супер задача

You task is to calculate the total price of a purchase from a vending machine.

Until you receive “**Start**” you will be given different coins that are being inserted in the machine. You have to sum them in order to have the total money inserted. There is a problem though. Your vending machine only works with **0.1**, **0.2**, **0.5, 1, and 2** coins. If someone tries to insert some other coins you have to display “**Cannot accept {money}**” and **not** add it to the total money. On the next few lines until you receive “**End**” you will be given products to purchase. Your machine has however only “**Nuts**”, “**Water**”, “**Crisps**”, “**Soda**”, “**Coke**”. The prices are: **2.0**, **0.7**, **1.5**, **0.8**, **1.0** respectively. If the person tries to purchase a not existing product print “**Invalid product**”. Be careful that the person may try to purchase a product they don’t have the money for. In that case print “**Sorry, not enough money**”. If the person purchases a product successfully print “**Purchased {product name}**”. After the “End” command print the money that are left formatted to the second decimal point in the format “**Change: {money left}**”.

Задачата ви е да изчислите общата цена на покупка от автомат.  
Докато не получите „Старт“, ще ви бъдат предоставени различни монети, които се вкарват в машината.  
Трябва да ги сумирате, за да бъдат вмъкнати в общите пари.  
Все пак има проблем.  
Вашият автомат работи само с 0,1, 0,2, 0,5, 1 и 2 монети.  
Ако някой се опита да вмъкне някои други монети, трябва да покажете „Не мога да приема {пари}“ и да не го добавя към общите пари.

В следващите няколко реда, докато не получите „Край“, ще ви бъдат предоставени продукти за закупуване.  
Вашата машина обаче има само „Ядки“, „Вода“, „Хрупки“, „Сода“, „Кокс“.  
Цените са: съответно 2.0, 0.7, 1.5, 0.8, 1.0.  
Ако лицето се опита да закупи несъществуващ продукт, отпечатайте „Невалиден продукт“.  
Внимавайте човекът да се опита да закупи продукт, за който няма пари.  
В този случай отпечатайте „Съжалявам, няма достатъчно пари“.  
Ако лицето закупи продукт успешно отпечатайте „Закупен {име на продукт}”.  
След командата „Край“ отпечатайте парите, които се оставят форматирани до втората десетична запетая във формата „Промяна: {пари оставени}“.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 1  1  0.5  0.6  Start  Coke  Soda  Crisps  End | Cannot accept 0.6  Purchased coke  Purchased soda  Sorry, not enough money  Change: 0.70 |

## Triangle of Numbers – двоен фор цикъл-мноо досадно

Write a program, which receives a number – **n**, and prints a triangle from **1 to n** as in the examples.

### Constraints

* **n** will be in the interval [**1...20]**.

### Examples

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |  | **Input** | **Output** |
| 3 | 1  2 2  3 3 3 | 5 | 1  2 2  3 3 3  4 4 4 4  5 5 5 5 5 | 6 | 1  2 2  3 3 3  4 4 4 4  5 5 5 5 5  6 6 6 6 6 6 |

## **\*Padawan Equipment**

Yoda is starting his newly created Jedi academy. So, he asked master Ivan Cho to **buy** the **needed equipment**. The number of **items** depends on **how many students will sign up**. The equipment for the Padawan contains **lightsabers, belts and robes**.

You will be given **the amount of money Ivan Cho has**, the **number of students** and the **prices of each item**. You have to help Ivan Cho **calculate** if the **money** he has is **enough to buy all of the equipment**, or how much more money he needs.   
Because the lightsabres sometimes brake, Ivan Cho should **buy 10% more**, **rounded up** to the next integer. Also, every **sixth belt is free**.

Йода започва своята новосъздадена академия на джедаите.  
И така, той помоли майстора Иван Чо да закупи необходимото оборудване.

Броят на предметите зависи от това колко студенти ще се запишат.

Оборудването за Padawan съдържа светлинни мечове, колани и одежди.

Ще ви бъде предоставена сумата пари, която има Иван Чо, броят на студентите и цените на всеки артикул.

Трябва да помогнете на Иван Чо да изчисли дали парите, които има, са достатъчни, за да закупи цялото оборудване или колко повече пари са му необходими.

Тъй като понякога спирачките на светлините, Иван Чо трябва да купи 10% повече, закръглени до следващото цяло число.

Също така, всеки шести колан е безплатен.

Вход   
Входните данни трябва да се четат от конзолата. Той ще се състои от точно 5 реда:

• Сумата, която има Иван Чо - число с плаваща запетая в диапазон [0,00… 1,000,00]  
•Броят на учениците - цяло число в обхват [0… 100]  
• Цената на светлинните сабели за една сабя - номер с плаваща запетая в диапазон [0,00… 100,00]  
• Цената на дрехи за единична роба - номер с плаваща запетая в диапазон [0.00… 100.00]  
• Цената на коланите за един колан - номер с плаваща запетая в диапазон [0.00… 100.00]

### Input / Constraints

The input data should be read from the console. It will consist of **exactly 5 lines**:

* The **amount of money** Ivan Cho has – **floating-point number** in **range [0.00…1,000.00]**
* The **count of students – integer in range [0…100]**
* The **price of lightsabers** for a **single sabre – floating-point number** in **range [0.00…100.00]**
* The **price of robes** for a **single robe – floating-point number** in **range [0.00…100.00]**
* The **price of belts** for a **single** **belt – floating-point number** in **range [0.00…100.00]**

The **input data will always be valid**. **There is no need to check it explicitly**.

### Output

The output should be printed on the console.

* **If the calculated price of the equipment is less or equal to the money Ivan Cho has:**
  + "The money is enough - it would cost {the cost of the equipment}lv."
* **If the calculated price of the equipment is more than the money Ivan Cho has:**
  + "Ivan Cho will need {neededMoney}lv more."
* **All prices** must be **rounded to two digits after the decimal point.**

### Examples

|  |  |  |
| --- | --- | --- |
| **Input** | **Output** | **Comments** |
| 100  2  1.0  2.0  3.0 | The money is enough - it would cost 13.00lv. | Needed equipment for 2 padawans :  sabresPrice\*(studentsCount + 10%) + robesPrice \* (studentsCount) + beltsPrice\*(studentsCount-freeBelts)  1\*(3) + 2\*(2) + 3\*(2) = 13.00  13.00 <= 100 – the money will be enough. |
| **Input** | **Output** | **Comments** |
| 100  42  12.0  4.0  3.0 | Ivan Cho will need 737.00lv more. | Needed equipment for 42 padawans:  12\*47 + 4\*42 + 3\*35 = 837.00  837 > 100 – need 737.00 lv. more. |

*...May the force  
 be with you...*

## \*Rage Expenses

As a MOBA challenger player, Pesho has the bad habit to trash his PC when he loses a game and rage quits. His gaming setup consists of **headset, mouse, keyboard and display**. You will receive Pesho`s **lost games count**.

Every **second** lost game, Pesho trashes his **headset.**

Every **third** lost game, Pesho trashes his **mouse**.

When Pesho trashes **both** **his mouse and headset** in the **same** lost game, he also trashes his **keyboard**.

**Every** **second time, when he trashes his keyboard**, he also trashes his **display**.

You will receive the price of each item in his gaming setup. Calculate his rage expenses for renewing his gaming equipment.

Като играч на MOBA претендент, Пешо има лошия навик да изхвърля своя компютър, когато загуби игра и яростта се откаже.  
Настройката му за игри се състои от слушалки, мишка, клавиатура и дисплей.

Ще получите броя на загубените игри на Пешо.  
Всяка втора изгубена игра Пешо изхвърля слушалките си.  
На всеки трети изгубен мач Пешо изхвърля мишката си.  
Когато Пешо изхвърли мишката и слушалката си в една и съща изгубена игра, той също изхвърля клавиатурата си.  
Всеки втори път, когато изхвърля клавиатурата си, той също изхвърля дисплея си.  
Ще получите цената на всеки артикул в неговата игрална настройка. Изчислете разходите му за ярост за обновяване на игралното му оборудване.

### Input / Constraints

* On the first input line - **lost games count** – integer in the range **[0, 1000]**.
* On the second line – **headset price** - floating point number in range **[0, 1000]**.
* On the third line – **mouse price** - floating point number in range **[0, 1000]**.
* On the fourth line – **keyboard price** - floating point number in range **[0, 1000]**.
* On the fifth line – **display price** - floating point number in range **[0, 1000]**.

### Output

* As output you must print Pesho`s total expenses: **"Rage expenses: {expenses} lv."**
* Allowed working **time** / **memory**: **100ms** / **16MB**.

### Examples

|  |  |  |
| --- | --- | --- |
| **Input** | **Output** | **Comment** |
| 7  2  3  4  5 | Rage expenses: 16.00 lv. | Trashed headset -> 3 times 1 1 1  Trashed mouse -> 2 times 1 1  Trashed keyboard -> 1 time 1  Total: 6 + 6 + 4 = 16.00 lv; |
| 23  12.50  21.50  40  200 | Rage expenses: 608.00 lv. |  |