# Exercise: Data Types, Variables and Key Concepts

Submit your solutions here: <https://alpha.judge.softuni.org/contests/data-types-variables-and-key-concepts-exercise/4627>

## Reversed Numbers

Write a program that:

* Reads three **floating-point numbers** from the console
* Print them in reversed order, each number on a **new line**

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 2  1  3 | 3  1  2 |
| -2  1  3 | 3  1  -2 |
| 0  0  2 | 2  0  0 |

## Centuries to Minutes

Write a program that:

* Reads an **integer number,** that represents centuries for conversion
* Convert centuries to years (1 century = 100 years)
* Convert years to days (1 year = 365.2422 days)
* Convert days to hours (1 day = 24 hours)
* Convert hours to minutes (1 hour = 60 minutes)
* Print converted data in the following format:

**"{centuries} centuries = {years} years = {days} days = {hours} hours = {minutes} minutes"**

### Example

|  |  |
| --- | --- |
| **Input** | **Output** |
| 1 | 1 centuries = 100 years = 36524 days = 876576 hours = 52594560 minutes |
| 5 | 5 centuries = 500 years = 182621 days = 4382904 hours = 262974240 minutes |

## Redecorating

Rumen wants to repaint the living room and has hired craftsmen for this purpose. Write **a program** that **calculates the cost of the repair,** taking the following **prices** for the calculation:

* **Protective nylon - 1.50 BGN per square meter**
* **Paint - 14.50 BGN per liter**
* **Paint thinner - 5.00 BGN per liter**

Just in case, to the **necessary** materials, Rumen wants **to** add **another 10%** of the amount of paint **and 2 square meters of nylon, also 0.40** **leva for bags. The amount** paid to the craftsmenfor **1 hour of work** is equal to **30% of the sum of all material costs.**

### Input

The input is read from **the console** and contains **exactly 4 lines**:

1. **Required amount of nylon (in sq.m.)** - an integer number in the range [1... 100]
2. **Required amount of paint (in liters)** - an integer number in the range [1... 100]
3. **Quantity of thinner (in liters) -** integer number in the range [1... 75]
4. **Hours** **needed for the craftsmen to do the work** - an integer number in the range [1... 50]

### Output

**Print out only one line on the console**:

* "{the sum of all costs}"

### Example

|  |  |  |
| --- | --- | --- |
| **Input** | **Exit** | **Comments** |
| **10**  **11**  **4**  **8** | 727.09 | Nylon amount: (10  **+** 2**) \*** 1.50 **= 18 BGN**  Amount for paint: (**11** + 10%**) \*** 14.50 **=** **175.45 BGN**  Amount for thinner: **4** \* 5.00 = **20.00 BGN**  Amount for bags: **0.40 BGN**  Total amount for materials: 18 + 175.45 + 20.00 + 0.40 **= 213.85 BGN**  Amount for craftsmen: (213.85 \* 30%) \* 8 = **513.24 BGN**  Total amount: 213.85 + 513.24 = **727.09 BGN** |
| **5**  **10**  **10**  1 | 286.52 | Amount for nylon: (**5** + **2**) \* 1.50 **= 10.50 BGN**  Amount for paint: (**10 +**  10%) \* **14.50 = 159.50 BGN**  Amount for thinner: **10** \* **5.00** = **50.00 BGN**  Amount for bags: **0.40 BGN**  Total amount for materials: 10.50 + 159.50 + 50.00 +  **0.40 = 220.40 BGN**  Amount for masters: (220.40 \* 30%) \* **1** = **66.12 BGN**  Total: 220.40 + 66.12 = **286.52 BGN** |

## Food Delivery

The restaurant opens its doors and offers several menus at preferential prices:

* **Chicken menu – 10.35 lv.**
* **Menu with fish – 12.40 lv.**
* **Vegetarian menu – 8.15** lv.

**Write a program that calculates how much it will cost a group of people to order takeaways.**

The group will also order a dessert, the **price** of which is equal to **20% of the total bill** (excluding delivery).

The delivery price is **2.50** BGN and is **finally charged.**

### Input

From the console read **3 lines**:

* **Number of chicken menus – integer in the range [0 ... 99]**
* **Number of menus with fish – integer in the range [0 ... 99]**
* **Number of vegetarian menus – an integer in the range [0 ... 99]**

### Output

**Print out only one line on the console: "{order price}"**

### Example

|  |  |  |
| --- | --- | --- |
| **Input** | **Output** | **Comments** |
| **2**  **4**  **3** | 116.2 | **Price for chicken menus: 2 pieces \* 10.35 = 20.70**  **Price for the menus with fish: 4 pieces \* 12.40 = 49.60**  **Price for vegetarian menus: 3 pieces \* 8.15 = 24.45**  **Total cost of menus: 20.70 + 49.60 + 24.45 = 94.75**  **Price of dessert: 20% from 94.75 = 18.95**  **Delivery price: 2.50 (conditional)**  **Total order price: 94.75 + 18.95 + 2.50 = 116.20** |
| **9**  **2**  **6** | 202.72 | **Price for chicken menus: 9 pieces \* 10.35 = 93.15**  **Price for fish menus: 2 pieces \* 12.40 = 24.80**  **Price for vegetarian menus: 6 pieces \* 8.15 = 48.90**  **Total cost of menus: 93.15 + 24.80 + 48.90 = 166.85**  **Price of dessert: 20% from 166.85 = 33.37**  **Delivery price: 2.50 (conditional)**  **Total order price: 166.85 + 33.37 + 2.50 = 202.72** |

## Basketball equipment

Jesse decides he wants to play basketball, but he needs equipment to train. **Write a program that calculates the expenses of Jesse if he starts training, knowing how much is the fee for basketball training for a period of 1 year.**

* **Basketball sneakers – their price is 40% less than the fee for one year**
* **Basketball uniform – its price is 20% cheaper than that of sneakers**
* **Basketball ball – its price is 1 / 4 of the price of the basketball uniform**
* Basketball accessories – their price is 1 / 5 of the price of the basketball ball

### Input

From the console read **1 row**:

* **The annual basketball training fee – an integer in the range [0... 9999]**

### Output

Print on the console **how much Jesse will spend if he starts playing basketball.**

### Example

|  |  |  |
| --- | --- | --- |
| **Input** | **Output** | **Comments** |
| **365** | 811.76 | **Price of training per year: 365**  **Price of basketball sneakers: 365 – 40% = 219**  **Price per basketball uniform: 219 – 20% = 175.20**  **Price of basketball ball: 1 / 4 from 175.20 = 43.80**  **Price of basketball accessories: 1 / 5 from 43.80 = 8.76**  **Total price for the equipment: 365 + 219 + 175.20 + 43.80 + 8.76 = 811.76** |
| **550** | 1223.2 | **Price of training per year: 550**  **Price of basketball sneakers: 550 – 40% = 330**  **Price per basketball uniform: 330 – 20% = 264**  **Basketball ball price: 1/4 of 264 = 66**  **Price of basketball accessories: 1 / 5 from 66 = 13.20**  **Total price for the equipment: 550 + 330 + 264 + 66 + 13.20 = 1223.2** |

## Aquarium

For his birthday, Lyubomir received an aquarium in the shape of a parallelepiped. **Initially, we read from the console in separate rows its dimensions – length, width and height in centimeters.** It is necessary to calculate how many liters of water the aquarium will collect, if it is known that a certain percentage of its capacity is occupied by sand, plants, heater and pump.

One liter of water is equal to one cubic decimeter (**1 l = 1 dm3**).

**Write a program that calculates the liters of water that are needed to fill the aquarium.**

### Input

From the console read **4 lines**:

1. **Length in cm – an integer number in the range [10 ... 500].**
2. **Width in cm – an integer number in the range [10 ... 300].**
3. **Height in cm – an integer number in the range [10... 200].**
4. **Percentage – floating point number in the range [0.000 ... 100.000].**

### Output

Print one number on the console:

* **the liters of water that the aquarium will collect, formatted to the second decimal place**.

### Example

|  |  |  |
| --- | --- | --- |
| **Input** | **Output** | **Comments** |
| **85**  **75**  **47**  **17** | 248.69 | Volume of the aquarium: **85** \* **75** \* **47** = **299625** cm3  Volume in liters: **299625** \* 0.001 or **299625** / 1000 => **299.625** liters  Occupied space: 17%  **=** 0.17  Required liters: 299.625 **\* (1 -** 0.17**)** = 248.68875 liters |
| **105**  **77**  **89**  **18.5** | 586.45 | Volume of the aquarium: **105** \* **77** \* **89** = **719565** cm3  Volume in  **liters: 719565** \* 0.001 or **719565** / 1000 => **719.565** liters  Occupied space: **18.5%** = **0.185**  Required liters: 719.565 **\* (1 - 0.185**) **= 586.445475 liters** |