# Exercise: Variables, Data Types and Expressions

Problems for exercises and homework for the [“Programming Fundamentals Extended” course @ SoftUni](https://softuni.bg/trainings/1860/fundamentals-of-programming-with-csharp-march-2018).

## Integer Types

Write program that receives **4 integers** and prints them, on a **single line**, separated by **spaces**.

### Constraints

* The **1st** one will be in **range [0, 255]**.
* The **2nd** one will be in **range [0, 231]**.
* The **3rd** one will be in **range [-231, 231 - 1]**.
* The **4th** one will be in **range [-264, 264 – 1]**.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 200  2000000000  -2140000000  18241240004204 | 200 2000000000 -2140000000 18241240004204 |

## Real Number Types

Write program that **receives 2 lines of input**.

* On the **1st** **line** you will receive **N** – the **count** of **digits** after the **decimal point**.
* On the **2nd** **line** you will receive a **number**.

### Constraints

* N will be in **range [0, 28]**.
* The number will be in **range [-264, 264]**.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 16  10.1234567891234567 | 10.1234567891234567 |

## Big Power

Write program that calculates **nn** (**n** powered by itself) for very big **n** (e.g. **1000**)

**Hint**: Look for a **data type** that can hold **really** **big numbers**.

### Constraints

* **N** will be a valid **integer** in **range [0, 1000]**.

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 69 | 7596040312163297274222442578208043236112279041839441308045514203595638030283176823539793587591372230230103933110810192201741429 |

## Hornet Wings

The hornets are having a cardio contest. Your task is to calculate a contestant’s distance travelled, based upon the wing flaps he made. However some hornet contestants are faster and less durable, while others are slower but have more endurance.

You will be given **N** – an **integer** indicating the **wing flaps**, a contestant has chosen to do.

After that, you will receive **M** – a **floating-point number** indicating the **distance**, in **meters**, the hornet travels for **1000 wing flaps**.

Then you will receive **P** – an **integer** indicating the **endurance** of the contestant, or **how many wing flaps** he can make, before **he stops to take a break** and rest. A hornet **rests** for **5** **seconds**.

You can assume that a hornet makes **100** wing flaps **per** **second**.

Your task is to **calculate** how much **distance** will the hornet **travel**, after it **flaps** its **wings** **N times**, and how much **time** it **took him**, to travel it. The **distance** is measured in **meters** and the time – in **seconds**.

### Input

* On the first input line you will receive N – the wing flaps, the hornet has chosen to do.
* On the second input line you will receive M – the distance the hornet travels for 1000 wing flaps.
* On the third input line you will receive P – the endurance of the hornet.

### Output

* As output you must print the total distance the hornet contestant has travelled, and the amount of time it took him.
* The output must be in the format of two lines:
* On the first output line you must print the distance: “**{metersTraveled} m.**”
* On the second output line you must print the time: “**{secondsPassed} s.**
* The **distance** must be **printed** to the **second digit** after the **decimal point**.

### Constrains

* The integer **N** – the wing flaps, will be in **range [0; 1,000,000,000]**.
* The floating-point number **M** – the distance for 1000 wing flaps, will be in **range [0; 1,000,000]**.
* The integer **P** – the endurance, will be in range **[1; N]**.

### Examples

|  |  |  |
| --- | --- | --- |
| **Input** | **Output** | **Comments** |
| 2000  5  200 | 10.00 m.  70 s. | The contestant has chosen to do **2000 wing flaps**.  He moves **5 meters** per **1000** wing flaps.  He rests every **200** **wing flaps** for **5** **seconds**.  The distance is **(2000 / 1000) \* 5 = 2 \* 5 = 10.00** meters.  The hornet flaps **100 times** for a **second**, so **2000 / 100 =** **20** seconds.  But it also rests for **5** seconds every **200** flaps.  **(2000 / 200) \* 5 = 10 \* 5** = **50**; **20** + **50** = **70** seconds. |
| 1000000  10  1500 | 10000.00 m.  13330 s. |