1. ­Write a program to read three numbers from the user and print them in ascending order.
2. Write a program to read an array of integers from the user and print the range of the even numbers.
3. Write a program to convert the weight from mg, Kg, Ton to Gram upon the user choice. If the user enters a negative numbers, the program prints an error message (Invalid weight). If the user enters a wrong selection, the program prints an error message (Invalid unit). The program can be executed 5 times.

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| --- | --- |
| **Input** | **Output** |
| Enter weight: 10  Enter weight unit (1 for mg, 2 for kg, 3 for ton): 2 | 10  Converting kg to gram  10000 |
| Enter weight: -5 | Invalid weight |
| Enter weight: 5  Enter weight unit (1 for mg, 2 for kg, 3 for ton): 4 | Invalid unit |

1. Write a program that reads the coefficients (a, b, c) of the quadratic equation ax2 + bx + c = 0. The program computes the roots (x1 and x2) if they exist. The roots of the equations can be one of the following four cases:

* any x is a solution (if a = b = c = 0)
* no solution (if a = b = 0, c ~= 0)
* one real root (if a = 0, so the root is −c/b)
* two real or complex roots (if not any of the above cases)

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| --- | --- |
| **Input** | **Output** |
| [0 0 0] | Any x is a solution |
| [0 0 2] | No solution |
| [0 1 3] | -3 |
| [1 -5 6] | 2  3 |

1. Write a program to read an array of students’ grades from the user and computes the number of A students, B students, C students...etc. according to the shown rules. Results should be stored in an array.

A (for grades greater than or equal 85%),

B (for grades greater than or equal 75%),

C (for grades greater than or equal 65%),

D (for grades greater than or equal 50%),

F (for grades less than 50%).

For example:

Input: [78 53 97 83 34]

Grades count: A=1 B=2 C=0 D=1 F=1

Output array will be [1 2 0 1 1]

1. The density of the Helium gas used in air balloons changes by time and it’s the controller of the altitude and velocity of the balloon. Thus the air balloon’s velocity and altitude mainly depends on the time spent hanging in the air. The relation between the velocity and altitude of the balloon and the time spent hanging in the air could be approximated by the following polynomial equations:



Where v is the velocity (m/hour), alt is the altitude (m), and t is the time (hours). Write a program to calculate the expected velocity and altitude given the time.

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| Input:  Time (hours) = 35 | Output:  Altitude (KMs)  12.645  Velocity (KMs/hour)  1.020 |