

**(System Calls and Arithmetic Operations)**

1. Input and Output in the command line, MARS MIPS simulator, window

- (a) Read three-integers from the command line window
- (b) ADD the three-integers
- (c) Print-out the result in the command line window

- **At the end of the problem clearly state the result (decimal)**

2. Print-out, in the command line window, the result of the following **“Pell”** equation:

$$f(x, y, n) = x^2 - n \times y^2$$

where,

$x$	$y$	$n$
3	2	1

- **At the end of the problem clearly state the result (decimal)**

3. Using MIPS Assembly evaluate the following **“3<sup>rd</sup>-degree Diophantine”** equation:

$$f(x, y, z) = x^3 + y^3 + z^3$$

where,

$x$	$y$	$z$
3	2	1

Place the result into register: [ \$t0 ].

- **At the end of the problem clearly state the result (decimal)**

4. Using MIPS Assembly evaluate the determinant of the “**Symmetric**” matrix:

$$|\mathbf{A}| = \begin{bmatrix} 4 & 1 & 2 \\ 1 & 0 & 3 \\ 2 & 3 & x \end{bmatrix}$$

... for  $x = 5$ .

Place the result into register: [ `$t0` ].

- At the end of the problem clearly state the result (decimal)

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Determinant (WikiPedia): <https://en.wikipedia.org/wiki/Determinant>

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- Prepare a report (PDF) taking in to account the following guidelines.
  1. Present the problem and the Assembly–Code
    - (a) The programs should be simple and well– documented
    - (b) The programs should be modularized
    - (c) Detailed comments are necessary
  2. **At the end of each problem clearly state the result**
  3. Indicate if the program runs successfully according to specifications
  4. Discuss the result
- How can I submit my software assignment?
  1. Create a folder
  2. Put all your assembly–programs and the report (PDF) in the folder
  3. Compress the folder: file.zip
  4. ... **Upload the zip file to CANVAS.**
- Grading:

Documentation	Excellent (3)	Average (2)	Low (1)
Functionality	Compiles fine (7)	Compiles warnings (4)	Does not Compile (2)
Delivery	On–time (%100)	Next–Day (50%)	After two days (%20)