

CSN 221

Assignment 2

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Question : Write a SimpleRisc assembly program to find the Ramanujan number , the smallest number that is a sum of two cubes in two different ways.

Solution :

```
mov r1,1
mov r2,0
.loop1
    mov r3,0
    mov r4,0
    .loop2
        add r4 , r4 , 1
        .loop3
            mov r5 , r4
            add r5 , r5 , 1
            mov r6 , r4
            mul r6 , r6 , r4
```

```
mul r6 , r6 , r4
mov r7 , r5
mul r7 , r7 , r5
mul r7 , r7 , r5
add r8 , r6 , r7
cmp r8 , r1
beq.method1
    .method1
    add r3 , 1
    mov r9 , 1
    add r9 , r9 , 1
    cmp r9 , r5
    bgt.loop3
    cmp r9 , r4
    bgt.loop2
```

```
cmp r3 , 2
beq.method2
    .method2
    mov r10 , r1
    add r2 , 1
```

```
add r1 , 1
cmp 1 , r2
bgt.loop1
```

The answer is stored in r10.