

5. Ramanujan Number is the smallest number that can be expressed as the sum of two cubes in two different ways.  
WAP to print all such numbers up to a reasonable limit.

```
#include <stdio.h>
int main () {
    int limit = 10000;
    printf ("Ramanujan Numbers up to %d : \n", limit);
    for (int a=1 ; a*a*a < limit; a++) {
        for (int b = a ; a*a*a + b*b*b < limit ; b++) {
            int sum1 = a*a*a + b*b*b;
            for (int c = a+1 ; c*c*c < limit ; c++) {
                for (int d=c ; c*c*c + d*d*d < limit ; d++) {
                    int sum2 = c*c*c + d*d*d;
                    if (sum1 == sum2 && (a!=c || b!=d)) {
                        printf ("%d = %d^3 + %d^3 = %d^3 + %d^3 \n", sum1, a, b, c, d);
                    }
                }
            }
        }
    }
    return 0;
}
```

C exp3loopspyramid1.c

C exp3ramanujan.c X

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C exp3ramanujan.c > ⚡ main()

```
1
2 #include <stdio.h>
3
4 int main() {
5     int limit = 10000;
6
7     printf("Ramanujan Numbers up to %d:\n", limit);
8
9     for (int a = 1; a * a * a < limit; a++) {
10        for (int b = a; a * a * a + b * b * b < limit; b++) {
11            int sum1 = a * a * a + b * b * b;
12
13            for (int c = a + 1; c * c * c < limit; c++) {
14                for (int d = c; c * c * c + d * d * d < limit; d++) {
15                    int sum2 = c * c * c + d * d * d;
16
17                    if (sum1 == sum2 && (a != c || b != d)) {
18                        printf("%d = %d^3 + %d^3 = %d^3 + %d^3\n", sum1, a, b, c, d);
19                    }
20                }
21            }
22        }
23    }
24
25    return 0;
26}
27
```

PROBLEMS    OUTPUT    TERMINAL    DEBUG CONSOLE    PORTS

```
PS C:\Users\abiga\OneDrive\Desktop\Absproj> cd "c:\Users\abiga\OneDrive\Desktop\Absproj\  
-o exp3ramanujan } ; if ($?) { .\exp3ramanujan }  
Ramanujan Numbers up to 10000:  
1729 = 1^3 + 12^3 = 9^3 + 10^3  
4104 = 2^3 + 16^3 = 9^3 + 15^3  
PS C:\Users\abiga\OneDrive\Desktop\Absproj>
```