

```

1: #include<iostream>
2: using namespace std;
3:
4: int main()
5: {
6:     int n;
7:     cout << "Enter your number: \n";
8:     cin >> n;
9:
10:    for(int i = 0; i < n; i++)
11:    {
12:        for(int j = i; j < n; j++)
13:        {
14:            for(int k = j; k < n; k++)
15:            {
16:                for(int l = k; l < n; l++)
17:                {
18:                    if(i * i + j * j + k * k + l * l == n)
19:                    {
20:                        cout << n << " = " << i << "^2 + " ;
21:                        cout << j << "^2 + " << k << "^2 + ";
22:                        cout << l << "^2";
23:                        goto label; /* We might get multiple
24:                        expression of a num, so as soon as we
25:                        are getting one we're exiting out of
26:                        all loops */
27:                    }
28:                }
29:            }
30:        }
31:    }
32:    label:
33:
34:    return 0;
35: }

```