```cpp
/****************************************************************************
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 *      Date Created:           10-17-13
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 *      Filename:               summation.cpp
 *
 *      Overview:
 *              Produces the sum on a number based on user input.
 *      Input:
 *              User inputs a number from 1-47.
 *      Output:
 *              The output is the user input to the 5th power +10.
 *
 ****************************************************************************/

#include <iostream>
#include <cmath>

using namespace std;

void summer ();

int main()
{
    summer();
    return 0;
}

void summer ()
{
        //setting up variables below
    int total = 0;
    int in_var;
    int i;
    short MAX_N = 47;    //I set the max at 47 to avoid overflow
    char run_again='1';


    while('1'==run_again) //while loop to run again if run_again is y
    {
       cout<<"What value would you like to stop the sum over the function x^5+10? "<<endl;
       cin>>in_var;     //user enters a number
       total = 0;//resets the total to 0

       while(in_var<1 || in_var>MAX_N) //while loop to ensure a valid number is entered
       {
        cout<<"That value is invalid, please enter a value from 1 through "<<MAX_N<<endl;
        cin>>in_var;//user enters a new number
       }
            for(i=1;i<=in_var;++i) //loop to run until in_var value is met
       {
           cout<<i<<endl;//displays the number its on
           total += pow(i,5)+10;//makes the calculation
       }

       cout<<"Total sum: "<<total<<endl;    //totals all the totals

           //the following asks the user if they want to go again
       cout<<"Would you like to try another value to sum up to? "<<endl;
       cout<<"Enter 1 for Yes and 0 for No: ";
       cin>>run_again;

       while(run_again!='1'&&run_again!='0')
          //can only run again if correct response is entered
       {
           cout<<"That value is invalid, please enter 1 for Yes or 0 for No: "<<endl;
```

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            cin>>run_again;
        }
    }
}
```