**Task 1**

#include <iostream>

using namespace std;

int main(){

int num = 1;

do{

cout << "Enter a number: ";

cin >> num;

}

while (num>0);

}

**Task 2**

#include <iostream>

#include<math.h>

using namespace std;

int main() {

int num1, num2 , answer=0 , t;

char operation;

do {

cout << "Enter the first number" << endl;

cin >> num1;

cout << "Enter the second number" << endl;

cin >> num2;

cout << "Enter the desired operation (+for addition,- for subtaction, \* for multiplication, / for division , % for modulus , ^ for power"<<endl;

cin >> operation;

switch (operation) {

case '+':

answer = num1 + num2;

break;

case '-':

answer = num1 - num2;

break;

case '\*':

answer = num1 \* num2;

break;

case '/':

if (num2 == 0) {

cout << "invalid denominator" << endl;

}

answer = num1 / num2;

break;

case '%':

if (num2 == 0) {

cout<<"invalid second number"<<endl;

}

answer = num1 % num2;

break;

case '^':

answer = pow (num1 , num2);

default:

cout<<"invalid operation try again"<<endl;

}

cout<<answer <<endl;

cout << "press 1 if you want to continue and 0 if you want to terminate"<<endl;

cin >> t;

}

while (t == 1);

return 0;

}

**Task 3**

**(a)**

#include <iostream>

#include <cmath>

using namespace std;

int main() {

int num = 0;

int sum = 0;

do {

sum += num;

num += 2;

} while (num <= 100);

cout << "The sum of all even numbers between 0 and 100 is " << sum << endl;

return 0;

}

**Task 3**

**(b)**

#include <iostream>

#include <cmath>

using namespace std;

int main() {

int num = 1;

int sum = 0;

do {

sum += num \* num;

num++;

} while (num <= 100);

cout << "The sum of all squares between 1 and 100 (inclusive) is " << sum << endl;

return 0;

}

**Task 4**

**(a)**

#include <iostream>

#include <cmath>

using namespace std;

int main() {

int power = 0 , answer;

do {

answer = pow (2, power);

cout << "2^" << power << "= " << answer<< endl;

power++;

} while (power <= 20);

return 0;

}

**Task 4**

**(b)**

#include <iostream>

using namespace std;

int main() {

int startNum, endNum, sum = 0;

cout << "Enter the starting integer: ";

cin >> startNum;

cout << "Enter the ending integer: ";

cin >> endNum;

for (int i = startNum; i <= endNum; i++) {

if (i % 2 != 0) {

sum += i;

}

}

cout << "The sum of all odd numbers between " << startNum << " and " << endNum << " is: " << sum << endl;

return 0;

}