// Program to calculate n^n

#include <stdio.h>

#include <stdlib.h>

double power (int base, int exponent)

{

int result=1;

for (int i=0;i<exponent;i++){

result=result\*base;

}

return result;

}

int main()

{

int n;

scanf("%d",&n);

printf("%d^%d=%lf",n,n,power(n,n));

return 0;

}

/\*\* Write a program which reads a sequence of real values filled by the user and stops by

displaying "done" when the sum of these values exceeds 100 \*\*/

#include <stdio.h>

int main()

{

int n=0,sum=0;

do{

printf("Enter a number:");

scanf("%d",&n);

sum=sum+n;

printf("Sum:%d\n",sum);

}while(sum<=100);

printf("done");

return 0;

}

/\*\* Write a program which reads a sequence of positive integer values and shows their

product and their sum when the user fills a negative number \*\*/

#include <stdio.h>

#include <stdlib.h>

int main()

{

int n=0,sum=0,prod=1;

printf("Enter a number, enter a negative number to stop:");

while (1){

scanf("%d",&n);

if (n<0){

break;

}

sum=sum+n;

prod=prod\*n;

}

printf("Sum=%d,Product=%d",sum,prod);

return 0;

}

//Write a program which reads a positive integer value and shows its divisors  
#include <stdio.h>  
int main()  
{  
    int n=0;  
    printf("Enter your number:");  
    scanf("%d",&n);  
    if (n==1){  
        printf("1");  
    }  
    else{  
    printf("The divisors of %d are:",n);  
    printf("1 ");  
    for (int i=2;i<=n/2;i++){  
        if (n%i==0){  
            printf("%d",i);  
        }  
    }  
    printf("%d",n);  
    }  
    return 0;  
}

// Write a program to read a positive integer and check whether it's a perfect number or not  
#include <stdio.h>  
int main()  
{  
    int n=0;  
    printf("Enter your number:");  
    scanf("%d",&n);  
    int sum=1;/// 1 is a divisor always  
    for (int i=2;i<=n/2;i++){  
        if (n%i==0){  
            sum=sum+i;  
        }  
    }  
    printf((sum=n)?"Perfect number":"Not a perfect number");  
    return 0;  
}

// Write a program to read a positive integer n and calculate the value of expression 1+4+7+10+...(<=n)  
#include <stdio.h>  
int main()  
{  
    int n=0,sum=0;  
    printf("Enter a number:");  
    scanf("%d",&n);  
    for (int i=1;i<=n;i=i+3){  
        sum=sum+i;  
    }  
    printf("The result of expression is:%d",sum);  
    return 0;  
}

//Write a program which reads a positive integer n and calculates the sum of even and odd numbers<=n  
#include <stdio.h>  
int main()  
{  
    printf("Enter a number:");  
    int n=0,sum\_of\_even=0,sum\_of\_odd=0;  
    scanf("%d",&n);  
    for (int i=2;i<=n;i=i+2){  
        sum\_of\_even=sum\_of\_even+i;  
    }  
    printf("Sum of even numbers <=%d is:%d\n",n,sum\_of\_even);  
    for (int i=1;i<=n;i=i+2){  
        sum\_of\_odd=sum\_of\_odd+i;  
    }  
    printf("Sum of odd numbers <=%d is:%d",n,sum\_of\_odd);  
    return 0;  
}

/\* Write a C program which reads a positive integer n and shows the result of expression: summation of (i+3)/(i^2-5), where i is from 1 to n \*/

#include <stdio.h>

int main()

{

printf("Enter a number:");

int n;

double sum=0;

scanf("%d",&n);

for (int i=1;i<=n;i++){

sum=sum+((i+3)/(i\*i-5.0));

}

printf("Result is:%lf",sum);

return 0;

}

/\* WAP to read a positive integer n and calculate the result of:

n divisible by 7: 1/1+1/2+1/3+...+1/n

else: n/1+n/2+n/3+...+n/(n-1)+1 \*/

#include <stdio.h>

int main()

{

printf("Enter your number:");

int n;

double sum=0;

scanf("%d",&n);

if (n%7==0){

for (double i=1;i<=n;i++){

sum=sum+(1/i);

}

}

else{

for (int i=1;i<=n;i++){

sum=sum+((double)n/i);

}

}

printf("Result is:%lf",sum);

return 0;

}

// WAP to check whether a positive integer is a prime or not

#include <stdio.h>

#include <stdbool.h>

int main()

{

printf("Enter a number:");

int n;

scanf("%d",&n);

bool isPrime=true;

for (int i=2;i<=n/2;i++){

if (n%i==0){

isPrime=false;

break;

}

}

printf("n is %s",(isPrime)?"prime":"not prime");

return 0;

}

//WAP to read 10 real numbers, then show the maximum and the minimum one

#include <stdio.h>

int main()

{

printf("Enter your numbers:");

int n=0;

scanf("%d",&n);

int min=n,max=n;

for (int i=1;i<=9;i++){

scanf("%d",&n);

min=(n<min)?n:min;

max=(n>max)?n:max;

}

printf("min=%d,max=%d",min,max);

return 0;

}

/\* WAP to read positive real numbers. The program stops when user fills a negative number and shows maximum and minimum of the given numbers.\*/

#include <stdio.h>

int main()

{

printf("Enter the number:");

int n=0;

scanf("%d",&n);

if (n<0) return 0;

int min=n,max=n;

while(1){

scanf("%d",&n);

if (n<0) break;

min=(n<min)?n:min;

max=(n>max)?n:max;

}

printf("min=%d,max=%d",min,max);

return 0;

}

//WAP to read two positive integers and show their GCD and LCM

#include <stdio.h>

int main()

{

printf("Enter the two numbers:");

int i1=0,i2=0;

scanf("%d %d",&i1,&i2);

int GCD=0;

int max=(i1>i2)?i1:i2;

for (int i=1;i<=max/2;i++){

if (i1%i==0 && i2%i==0){

GCD=i;

}

}

int LCM=max;

for (;LCM<=i1\*i2;LCM++){

if (LCM%i1==0 && LCM%i2==0){

break;

}

}

printf("GCD=%d,LCM=%d",GCD,LCM);

return 0;

}

// WAP to print the fibonacci series

#include <stdio.h>

int main()

{

printf("Enter n:");

int n=0;

scanf("%d",&n);

if (n==1 || n==2){

printf("The fibonacci number is 1");

return 0;

}

int fibN=0;

int i1=1,i2=1;

for (int i=1;i<=n-2;i++){

fibN=i1+i2;

i1=i2;

i2=fibN;

}

printf("The fibonacci number is:%d",fibN);

return 0;

}

/\* WAP to find whether a four digit number is a lucky number. ABCD is a lucky number if A+B=C+D \*/

#include <stdio.h>

int main()

{

printf("Enter a 4-digit number:");

int n=0;

scanf("%d",&n);

printf("%d",n%10+(n/10)%10==(n/100)%10+(n/1000)%10);

return 0;

}

/\* 0,1,1,2,3,5,8,13....... upto n terms.

print using array and also print sum of array\*/

#include <iostream>

using namespace std;

int main()

{

int n;

cin>>n;

int a[n];

int i;

a[0]=0;

a[1]=1;

for(int i=2;i<=n;i++){

a[i]=a[i-1]+a[i-2];

}

for (i=0;i<=n;i++){

cout<<a[i]<<" ";

}

int sum=0;

for(int i=0;i<=n;i++){

sum=sum+a[i];

}

cout<<"\n"<<sum;

}

// 0,1,1,2,3,5,8,13....... upto n.

#include <iostream>

using namespace std;

int main()

{

int i=0;

int c=0;

int n;

cin>>n;

int a=0,b=1;

while(c<n){

c=a+b;

swap(a,b);

swap(b,c);

cout<<c<<" ";

}

return 0;

}

// Write a function to check if a number is prime or not

#include <iostream>

using namespace std;

bool isPrime(int n){

for(int i=2;i<=n-1;i++){

if (n%i==0){

return false;

}

}

return true;

}

int main()

{

int n;

cin>>n;

if(isPrime(n)){

cout<<"Prime"<<endl;

}else{

cout<<"Not Prime"<<endl;

}

return 0;

}

// Write a function to generate all prime functions

#include <iostream>

using namespace std;

bool isPrime(int n)

{

for(int i=2;i<=n-1;i++){

if(n%i==0){

return false;

}

}

return true;

}

void generatePrime(int n)

{

for(int i=2;i<=n;i++){

if(isPrime(i)){

cout<<i<<endl;

}

}

}

int main()

{

int n;

cin>>n;

generatePrime(n);

return 0;

}

// Write a function to return the factorial of a number

#include <iostream>

using namespace std;

void generateFac(int n){

int fac=1;

for(int i=1;i<=n;i++){

fac=i\*fac;

}

cout<<fac;

}

int main()

{

int n;

cin>>n;

generateFac(n);

return 0;

}

// Write a function to generate NCR= n!/(n-r)!r!

#include <iostream>

using namespace std;

int generateFac(int n){

int fac=1;

for(int i=1;i<=n;i++){

fac=i\*fac;

}

return fac;

}

int main()

{

int n,r;

cin>>n>>r;

cout<<(generateFac(n))/((generateFac(n-r))\*(generateFac(r)))<<endl;

return 0;

}

/\* Print the pattern for value of n if n=6, then:

1

11

111

1001

11111

100001 \*/

#include<iostream>

using namespace std;

void print(int n){

int i=1;

while(i<=n)

{

if(i%2!=0){

for(int j=1;j<=i;j++){

cout<<"1";

}

}

else{

cout<<"1";

for(int k=1;k<=i-2;k++){

cout<<"0";

}

cout<<"1";

}

cout<<"\n";

i++;

}

}

int main()

{

int n;

cin>>n;

print(n);

return 0;

}

/\*Print the sequence if n=5, then:

1

2 2

3 0 3

4 0 0 4

5 0 0 0 5\*/

#include<iostream>

using namespace std;

void print(int n){

int i=2;

cout<<"1"<<endl;

while(i<=n)

{

cout<<i<<"\t";

for(int j=1;j<=i-2;j++){

cout<<"0"<<"\t";

}

cout<<i<<"\t"<<endl;

i++;

}

}

int main()

{

int n;

cin>>n;

print(n);

return 0;

}

//Write a function which prints first N1 terms of the series 3n + 2 which are not multiples of N2

#include<iostream>

using namespace std;

void print(int n){

int i=2;

cout<<"1"<<endl;

while(i<=n)

{

cout<<i-1;

for(int j=2;j<i;j++){

cout<<"0";

}

cout<<i-1<<endl;

i++;

}

}

int main()

{

int n;

cin>>n;

print(n);

return 0;

}

// Print “UPPERCASE” when A-Z are input and “lowercase” when a-z are input and “Invalid” for all other characters

#include<iostream>

using namespace std;

void print(int n){ /// I wanted to pass character variable, but udemy is not allowing , so i am passing integer

char c = n; // to get character 65 is 'A' 1 97 is 'a' ....

// complete this function

if((65<=n)&&(n<=90)){

cout<<"UPPERCASE";

}

else if((97<=n)&&(n<=122)){

cout<<"lowercase";

}

else{

cout<<"Invalid";

}

}

int main()

{

int n;

cin>>n;

print(n);

return 0;

}

//Input coefficients of a quadratic equation and print whether that equation has real and distinct, real and equal or imaginary roots and also print the roots

#include<iostream>

#include<cmath>

using namespace std;

void print(int a,int b,int c){

// complete this function

if(((pow(b,2))-(4\*a\*c))>0){

cout<<"Real and Distinct"<<endl;

cout<<(-b - sqrt(pow(b,2) - 4\*a\*c))/2\*a<<" "<<(-b + sqrt(pow(b,2) - 4\*a\*c))/2\*a;

}

else if(((pow(b,2))-(4\*a\*c))==0){

cout<<"Real and Equal"<<endl;

cout<<(-b - sqrt(pow(b,2) - 4\*a\*c))/2\*a<<" "<<(-b + sqrt(pow(b,2) - 4\*a\*c))/2\*a;

}

else{

cout<<"Imaginary";

}

}

int main()

{

int a,b,c;

cin>>a;  
 cin>>b;  
 cin>>c;

print(a,b,c);

return 0;

}

/\* Check whether a number is prime or not  
#include<iostream>

using namespace std;

void print(int n){

// complete this function

for(int i=2;i<n;i++){

if(n%i==0){

cout<<"Not Prime";

return;

}

}

cout<<"Prime";

}

int main()

{

int n;

cin>>n;

print(n);

return 0;

}

// Print the reverse of a number

#include<iostream>

using namespace std;

void print(int n){

// complete this function

int rev=0;

while(n!=0){

int digit=n%10;

rev=rev\*10+digit;

n=n/10;

}

cout<<rev;

}

int main()

{

int n;

cin>>n;

print(n);

return 0;

}

/\* Due to an immense rise in Pollution, Home Minister is back with the Odd and Even Rule in City. The scheme is as follows, each car will be allowed to run on Sunday if the sum of digits which are even is divisible by 4 or sum of digits which are odd in that number is divisible by 3. However to check every car for the above criteria can't be done by the City Police. You need to help City Police by finding out if a car numbered N will be allowed to run on Sunday? \*/

#include<iostream>

using namespace std;

void print(int n){

// complete this function

int sumodd=0,sumeven=0;

while(n!=0){

int digit=n%10;

if(digit%2==0){

sumeven=sumeven+digit;

}

else{

sumodd=sumodd+digit;

}

n=n/10;

}

if((sumeven%4==0)||(sumodd%3==0)){

cout<<"Yes";

}

else{

cout<<"No";

}

}

int main()

{

int n;

cin>>n;

print(n);

return 0;

}

/\* Take the following as input.

Minimum Fahrenheit value  
Maximum Fahrenheit value  
Step

Print as output the Celsius conversions. Use the formula C = (5/9)(F – 32) E.g. for an input of 0, 100 and 20 the output is  
0 -17  
20 -6  
40 4  
60 15  
80 26  
100 37 \*/

#include<iostream>

using namespace std;

void print(int ll, int ul,int step){

// complete this function

for(int i=ll;i<=ul;i=i+step){

int c=(int)((5.0/9)\*(i-32));

cout<<i<<"\t"<<c<<endl;

}

}

int main()

{

int ll,ul,step;

cin>>ll;

cin>>ul;

cin>>step;

print(ll,ul,step);

return 0;

}