 // question 1 WAP to check number is armstrong or not

#include<stdio.h>

#include<math.h>

int main(){

    int n,original,r,digits=0,sum=0;

    printf("enter number:");

    scanf("%d",&n);

    original=n;

while(original>0){

    original/=10;

    digits++;

}

original=n;

while(original>0){

    r=original%10;

    sum+=(int)pow(r,digits);

    original/=10;

}

if(sum==n){

    printf("%d is armstrong number",n);

}

else{

    printf("%d is not armstrong number",n);

}

return 0;

}

//wap to read two integers and print hcf

#include<stdio.h>

#include<math.h>

int main(){

    int n1,n2,min,hcf;

    printf("enter two numbers:");

    scanf("%d %d",&n1,&n2);

    min=(n1<n2)?n1:n2;

    for(int i=1;i<=min;i++){

        if(n1%i==0 && n2%i==0){

            hcf=i;

        }

    }

    printf("hcf of %d and %d is %d\n",n1,n2,hcf);

    return 0;

}

// queation3 wap to subtract two integers without minus operator(bitwise operator)

#include<stdio.h>

int main(){

    int a,b;

    printf("enter a and b:");

    scanf("%d %d",&a,&b);

    while(b!=0){

    int udhar=(~a)&b;

    a=a^b;

    b=udhar<<1;

    }

    printf("the result of subtraction is %d\n",a);

    return 0;

}

//wap to to swap two numbers 1 st method

#include<stdio.h>

int main(){

    int n1,n2,temporary\_variable;

    printf("enter n1,n2:");

    scanf("%d %d",&n1,&n2);

    temporary\_variable=n1;

    n1=n2;

n2=temporary\_variable;

    printf("numbers after swapping is %d and %d\n",n1,n2);

    return 0;

}

//wap to to swap two numbers 2nd method

#include<stdio.h>

int main(){

    int n1,n2;

    printf("enter n1,n2:");

    scanf("%d %d",&n1,&n2);

    n1=n1+n2;

    n2=n1-n2;

    n1=n1-n2;

    printf("number after swapping is %d and %d\n",n1,n2);

    return 0;

}

 //wap to to swap two numbers 3rd method

#include<stdio.h>

int main(){

  int n1,n2;

  printf("enter n1,n2:");

  scanf("%d %d",&n1,&n2);

  n1=n1^n2;

  n2=n2^n1;

  n1=n1^n2;

  printf("number after swapping is %d and %d\n",n1,n2);

    return 0;

}

//wap to to swap two numbers 4th method

#include<stdio.h>

int main(){

  int n1,n2;

  printf("enter n1,n2:");

  scanf("%d %d",&n1,&n2);

  n1=n1\*n2;

  n2=n1/n2;

  n1=n1/n2;

  printf("number after swapping is %d and %d\n",n1,n2);

    return 0;

}

///wap to check number is perfect number or not

#include<stdio.h>

int main(){

  int n,sum=0;

  printf("enter n:");

  scanf("%d",&n);

  for(int i=1;i<=n/2;i++){

      if(n%i==0){

          sum+=i;

      }

  }

  if(sum==n ){

      printf("%d is perfect number",n);

  }

  else{

      printf("%d is not perfect number",n);

  }

    return 0;

}

//wap to determine quadrant for coordinate x and y

#include<stdio.h>

int main(){

  int x,y;

  printf("enter x and y:");

  scanf("%d %d",&x,&y);

if(x>0 && y>0){

     printf("x=%d & y=%d in 1st quadrant",x,y);

}

else if(x<0 && y>0){

    printf("x=%d & y=%d in 2nd quadrant",x,y);

}

else if(x<0 && y<0){

    printf("x=%d & y=%d in 3rd quadrant",x,y);

}

else if(x>0 && y<0){

    printf("x=%d & y=%d in 4th quadrant",x,y);

}

else if(x=0 && y!=0){

    printf("point on y axis y=%d",y);

}

else if(y=0 && x!=0){

    printf("point on x axis",x);

}

else{

     printf("point on origin");

}

    return 0;

}

// converting decimal to binary ,binary to decimal

#include <stdio.h>

#include<math.h>

int binarytodecimal(long long binary);

long long decimaltobinary(int decimal);

int main() {

    int choice;

    printf("Enter choice:");

    //choice=1 binarytodecimal choice=2 decimaltobinary

    scanf("%d",&choice);

    if(choice==1){

        long long binary;

        printf("enter binary ");

        scanf("%11d",&binary);

        printf("decimal=%d\n",binarytodecimal(binary));

    }

    else if(choice==2){

        int decimal;

        printf("enter decimal :");

        scanf("%d\n",&decimal);

        printf("binary=%11d\n",decimaltobinary(decimal));

    }

      else{

          printf("invalid choice");

      }

      return 0;

}

      int binarytodecimal(long long binary){

          int decimal=0,r,i=0;

          while(binary!=0){

              r=binary%10;

              decimal+=r\*pow(2,i);

              binary/=10;

              i++;

      }

      return decimal;

      }

      long long decimaltobinary(int decimal){

          long long binary=0,r,i=1;

          while(decimal!=0){

              r=decimal%2;

              binary+=r\*i;

              decimal/=2;

              i\*=10;

          }

          return binary;

      }

      // making pattern of 1;0 1;1 0 1; 0 1 0 1;1 0 1 0 1

#include <stdio.h>

#include<math.h>

int main(){

    int n=5;

    for(int i=1;i<=n;i++){

        for(int j=1;j<=i;j++){

            if((i+j)%2==0){

                printf("1");

            }

            else{

                printf("0");

            }

        }

printf("\n");

}

return 0;

}

// making pattern of 1;0 1;1 0 1; 0 1 0 1;1 0 1 0 1

#include <stdio.h>

#include<math.h>

int main(){

    int n=5;// n=number of rows

    for(int i=1;i<=n;i++){

        for(int j=0;j<i;j++){

            printf("%d",j%2);

        }

                printf("  ");

           for(int j=0;j<i;j++){

                printf("%d",j%2);

           }

printf("\n");

}

return 0;

}

//pascal’s triangle c=coeff

#include <stdio.h>

int main() {

    int rows, c= 1, space, i, j;

    printf("Enter the number of rows: ");

    scanf("%d", &rows);

    for(i = 0; i < rows; i++) {

        for(space = 1; space <= rows - i; space++)

            printf("  ");

        for(j = 0; j <= i; j++) {

            if (j == 0 || i == 0)

                coef = 1;

            else

                c= c\* (i - j + 1) / j;

            printf("%4d", c);

        }

        printf("\n");

    }

    return 0;

}