#include <stdio.h>

#include <stdbool.h> // for using boolean data type

bool isPrime(int num);

bool isArmstrong(int num);

bool isPerfect(int num);

int main() {

int num;

printf("Enter a positive integer: ");

scanf("%d", &num);

// Check if the number is prime

if (isPrime(num)) {

printf("%d is a prime number\n", num);

}

else {

printf("%d is not a prime number\n", num);

}

// Check if the number is Armstrong

if (isArmstrong(num)) {

printf("%d is an Armstrong number\n", num);

}

else {

printf("%d is not an Armstrong number\n", num);

}

// Check if the number is perfect

if (isPerfect(num)) {

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

}

else {

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

}

return 0;

}

// Function to check if a number is prime

bool isPrime(int num) {

int i;

if (num <= 1) {

return false;

}

for (i = 2; i <= num / 2; i++) {

if (num % i == 0) {

return false;

}

}

return true;

}

// Function to check if a number is Armstrong

bool isArmstrong(int num) {

int temp, digit, sum = 0;

temp = num;

while (temp != 0) {

digit = temp % 10;

sum += digit \* digit \* digit;

temp /= 10;

}

if (num == sum) {

return true;

}

return false;

}

// Function to check if a number is perfect

bool isPerfect(int num) {

int i, sum = 0;

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

if (num % i == 0) {

sum += i;

}

}

if (sum == num) {

return true;

}

return false;

}