第六章 函数和递归入门

6.12

#include<iostream>

#include<cmath>

#include<iomanip>

using namespace std;

double calculateCharges( double hours );

int main( )

{

double hours1, hours2, hours3;

cout << "Input the hours of car :";

cin >> hours1 >> hours2 >> hours3;

cout << fixed << setprecision( 2 );

cout << "Car" << setw( 20 ) << " Hours " << setw( 20 ) << " Charge "<< endl;

cout << "1" << setw( 20 ) << hours1<< setw( 20 ) << calculateCharges( hours1 )<<endl;

cout << "2" << setw( 20 ) << hours2<< setw( 20 ) << calculateCharges( hours2 )<<endl;

cout << "3" << setw( 20 ) << hours3<< setw( 20 ) << calculateCharges( hours3 )<<endl;

cout << "TOTAL" << setw( 16 ) << hours1 + hours2 + hours3 << setw( 20 )

<< calculateCharges( hours1 ) + calculateCharges( hours2 ) + calculateCharges( hours3 ) <<endl;

}

double calculateCharges( double hours )

{

if( ( hours >0 ) && ( hours <= 3 ) )

return 2.0;

else

if( ( hours>3 )&& ( hours <= 19 ) )

return 2.00+ceil( hours - 3 )\*0.5;

else

return 10;

}

6.14

#include<iostream>

#include<cmath>

#include<iomanip>

using namespace std;

double roundToInteger( double );

double roundToTenths( double );

double roundToHundredths( double );

double roundToThousandths( double );

int main( )

{

double x;

cout << " Please Input the number: ";

cin >> x;

cout << "roundToInteger :" << roundToInteger( x ) <<endl;

cout << "roundToTenths :" << roundToTenths( x ) <<endl;

cout << "roundToHundredths :" << roundToHundredths( x ) <<endl;

cout << "roundToThousandths :" << roundToThousandths( x ) <<endl;

}

double roundToInteger( double number )

{

return floor( number + .5 ) ;

}

double roundToTenths( double number )

{

return floor( number\*10 + .5 ) / 10;

}

double roundToHundredths( double number )

{

return floor( number\*100 + .5 ) / 100;

}

double roundToThousandths( double number )

{

return floor( number\*1000 + .5 ) / 1000;

}

6.16

#include<iostream>

#include<iomanip>

#include<ctime>

#include<cstdlib>

using namespace std;

int main( )

{

srand( time( 0 ) );

int x;

x= 1 + rand( ) % 1;

cout<<"x = "<< x <<endl;

x= 1 + rand( ) % 100;

cout<<"x= "<< x <<endl;

x= 0 + rand( ) % 9;

cout<<"x= "<< x <<endl;

x= 1000 + rand( ) % 112;

cout<<"x= "<< x <<endl;

x= -1 + rand( ) % 2;

cout<<"x= "<< x <<endl;

x= -3 + rand( ) % 15;

cout<<"x= "<< x <<endl;

}

6.17

#include<iostream>

#include<iomanip>

#include<ctime>

#include<cstdlib>

using namespace std;

int main()

{

int array1[] = { 2, 4, 6, 8, 10 };

int array2[] = { 3, 5, 7, 9, 11 };

int array3[] = { 6, 10, 14, 18, 22 };

srand( time( 0 ) );

for (int i = 0; i < 3; i++)

{

cout<< "第Ì¨²" <<i+1<< "次ä?随?机¨²结¨¢果?:" <<endl;

cout<<"\t第Ì¨²一°?组Á¨¦数ºy据Y中D的Ì?随?机¨²数ºy:"<<array1[rand() % 5]<<endl;

cout<<"\t第Ì¨²二t组Á¨¦数ºy据Y中D的Ì?随?机¨²数ºy:"<<array2[rand() % 5]<<endl;

cout<<"\t第Ì¨²三¨y组Á¨¦数ºy据Y中D的Ì?随?机¨²数ºy:"<<array3[rand() % 5]<<endl;

cout<<endl<<endl;

}

return(0);

}

6.18

#include<iostream>

using namespace std;

int integerPower( int, int );

int main()

{

int x,y;

cout << "Please input the base: ";

cin >> x;

cout << "plesae input the exponent: ";

cin >> y;

cout << "integerPower( " << x << " , " << y << ") = " <<integerPower( x ,y );

}

int integerPower( int base, int exponent )

{

int value1 = 1;

for( int counter = 1;counter <= exponent ; counter++ )

value1 \*= base;

return value1;

}

6.19

#include<iostream>

#include<cmath>

#include<iomanip>

using namespace std;

double hypotenuse( double, double );

int main()

{

double x,y;

cout << "Please input the side1: ";

cin >> x;

cout << "plesae input the side2: ";

cin >> y;

cout << "hypotenuse = " << fixed << setprecision(2)<<hypotenuse( x ,y );

}

double hypotenuse( double side1, double side2 )

{

return sqrt( pow( side1 ,2 ) + pow( side2 ,2 ) );

}

6.20

#include<iostream>

#include<cmath>

using namespace std;

bool multiple( double, double );

int main( )

{

int x,y;

cout<<"Please input two integer numbers: ";

loop: cin >> x >> y;

cout<<boolalpha<<multiple( x, y )<<endl;

// if( multiple( x,y )==1 )

// cout << " true\n ";

// else

// cout << " false\n ";

goto loop;

}

bool multiple( double number1, double number2 )

{

if( ceil( number2 / number1 ) == floor( number2 / number1 ))

return true;

else

return false;

}

6.21

#include<iostream>

#include<cmath>

using namespace std;

bool iseven( int );

int main( )

{

int x;

cout<<"Please input the integer number: ";

cin >> x ;

cout<<boolalpha<<iseven( x )<<endl;

// if( multiple( x,y )==1 )

// cout << " true\n ";

// else

// cout << " false\n ";

}

bool iseven( int number)

{

if( number % 2 ==0 )

return true;

else

return false;

}

6.22

#include<iostream>

using namespace std;

void printSar( int );

int main( )

{

int x;

cout<<"Please input the integer number: ";

cin >> x ;

printSar( x );

return 0;

}

void printSar( int number)

{

for( int counter1 = 1;counter1 <= number; counter1 ++ )

{

for( int counter = 1; counter <= number ;counter++ )

cout<<'\*';

cout<<endl;

}

}

6.23

#include<iostream>

using namespace std;

void printSar( int,char );

char fillCharacter( char );

int main( )

{

int x;

char c;

cout<<"Please input the integer number and character: ";

cin >> x ;

cin >> c;

printSar( x,c );

return 0;

}

void printSar( int number,char character )

{

for( int counter1 = 1;counter1 <= number; counter1 ++ )

{

for( int counter = 1; counter <= number ;counter++ )

cout<<fillCharacter( character );

cout<<endl;

}

}

char fillCharacter( char Character )

{

return Character;

}

6.24

#include<iostream>

using namespace std;

int Divide( int,int );

int Remainder( int, int );

int NumberOrder( int );

int main( )

{

int x,y;

short z;

cout<<"Please input two integer numbers to use :";

cin >> x ;

cin >> y;

cin >> z;

cout << " The result of divide : " << Divide( x,y ) << endl;

cout << "\n The Remainder of divide :"<< Remainder( x,y )<<endl;

cout << "the number of " << z << "'s order is :";

NumberOrder( z );

}

int Divide( int number1,int number2 )

{

return number1 / number2 ;

}

int Remainder( int number1,int number2 )

{

return number1 % number2 ;

}

int NumberOrder( int number3 )

{

for ( int counter = 1,mode=1;counter <= 5; counter++ )

{

mode = mode \* 10;

if ( Remainder( number3 ,mode ) == number3 )

{

for( int counter1=counter-1, mode1 = mode ;counter1 >= 1,mode1 = mode1 / 10;counter1-- )

{

cout<<" "<<Divide( number3 ,mode1 );

number3 = Remainder( number3 ,mode1 );

}

cout<<endl;

}

}

return 0;

}

6.25

#include <iostream>

#include<cmath>

using namespace std;

double TimeFunction(int,int,int);

int main()

{

int H\_1, M\_1,S\_1;

int H\_2, M\_2,S\_2;

char Colon1,Colon2;

cout << " Please input the first time: ";

cin >> H\_1 >> Colon1 >> M\_1 >> Colon2 >> S\_1;

cout << " The seconds from the last clock struck 12 o'clock is: "<< TimeFunction( H\_1, M\_1,S\_1 ) <<endl;

cout << " Please input the second time: ";

cin >> H\_2 >> Colon1 >> M\_2 >> Colon2 >> S\_2;

cout << " The seconds from the last clock struck 12 o'clock is: "<< TimeFunction( H\_2, M\_2,S\_2 ) <<endl;

cout << " The number of seconds between two times are : "<< fabs( TimeFunction( H\_1, M\_1,S\_1 ) - TimeFunction( H\_2, M\_2,S\_2 ) )<<endl;

}

double TimeFunction(int Hours,int Minutes,int Seconds)

{

return Hours \*3600 + Minutes \* 60 + Seconds ;

}

6.26

#include <iostream>

#include<iomanip>

using namespace std;

double Fahrenheit( int );

double Celsius( int );

int main()

{

int DegreeFahrenheit; //华a氏º?温?度¨¨

int DegreeCelsius; //摄¦?氏º?温?度¨¨

cout << fixed << setprecision( 2 );

cout << " Please input the Degree Fahrenheit: ";

cin >>DegreeFahrenheit ;

cout << " Degree Celsius is : "<< Celsius( DegreeFahrenheit )<<endl;

cout << " Please input the Degree Celsius: ";

cin >>DegreeCelsius ;

cout << " Degree Fahrenheit is : "<< Fahrenheit( DegreeCelsius )<<endl;

cout << " the table of DegreeCelsius-----DegreeFahrenheit "<<endl;

for( int counter = 0 ,i = 1; counter <= 100; counter++ )

{

cout << Fahrenheit( counter )<<'\t';

if( i% 10 ==0 )

cout << endl;

i++;

}

cout << "\n the table of DegreeFahrenheit-----DegreeCelsius "<<endl;

for( int counter = 32 ,i = 1; counter <= 212; counter++ )

{

cout << Celsius( counter )<<'\t';

if( i% 10 ==0 )

cout << endl;

i++;

}

}

double Fahrenheit( int temperature )

{

return temperature \* 1.8 + 32;

}

double Celsius( int temperature )

{

return ( temperature - 32 ) / 1.8;

}

6.27

#include <iostream>

#include<iomanip>

using namespace std;

double min( double, double, double);

int main()

{

double x,y,z;

cout << " please input three double numbers : ";

cin >> x >> y >> z;

cout <<"the minimum number is "<<min( x,y,z)<<endl;

}

double min( double x, double y, double z )

{

double T;

T=x < y? x : y ;

return T < z ?T:z;

}

6.28

#include <iostream>

#include<iomanip>

using namespace std;

int isperfect( int );

int main()

{

cout << "perfect numbers : "<<endl;

for( int counter = 1; counter <= 1000; counter++ )

{

if( isperfect( counter ) == counter )

cout<< isperfect( counter )<<setw( 10 );

}

}

int isperfect( int number )

{

int sum = 0;

int counter1;

for( counter1 = 1; counter1 < number ; counter1++ )

if ( number % counter1 == 0 )

sum += counter1;

return sum ;

}

6.29

#include <iostream>

#include<cmath>

#include<iomanip>

using namespace std;

bool isprime( int );

int main()

{

cout << " the numbers between 2 and 10 000 is: "<<endl;

for( int counter1 = 2 , i=0;counter1 <= 10000 ;counter1++ )

{

if( isprime( counter1 )==true )

{

cout << setw(5)<<counter1<<setw(5);

i++;

if ( i%10 ==0 )

cout<<endl;

}

}

}

bool isprime( int number )

{

if ( number == 1 )

return false;

if ( number == 2 )

return true;

for ( int counter = 2 ; counter < number ; counter++ )

if ( number % counter == 0 )

return false;

return true;

}

6.30

#include <iostream>

#include<cmath>

#include<iomanip>

using namespace std;

void ReseredOrder( int );

int main()

{

int num;

cout << " Input the number: "<<endl;

cin >> num;

ReseredOrder( num );

}

void ReseredOrder( int number )

{

do{

cout << number%10;

number = number / 10;

}while( number !=0 );

}

6.31

#include <iostream>

#include<cmath>

#include<iomanip>

using namespace std;

int gcd( int,int );

int main()

{

int x,y;

cout << " Input two numbers: "<<endl;

cin >> x >>y;

gcd( x,y );

cout << " GCD is "<<gcd( x,y ) <<endl;

}

//int gcd( int number1,int number2 )

//{

// int Mod;

// if( number2 > number1 )

// {

// Mod = number1;

// number1 = number2;

// number2 = Mod;

// }

// do{

// Mod = number1 % number2;

// number1 = number2;

// number2 = Mod;

// }while( Mod != 0 );

// return number1;

//}

int gcd(int number1, int number2)

{

if(number2 == 0) return number1;

else return gcd(number2, number1%number2);

}

6.32

#include <iostream>

#include<cmath>

#include<iomanip>

using namespace std;

int qualityPoints( double );

int main()

{

double x;

cout << " input the student's grade : "<<endl;

cin >> x ;

cout << " the point is "<<qualityPoints( x ) <<endl;

}

int qualityPoints( double number )

{

if( ( number>=90 )&&( number <=100 ))

return 4;

else

if( ( number>=80 )&&( number <90 ))

return 3;

else

if( ( number>=70 )&&( number <80 ))

return 2;

else

if( ( number>=60 )&&( number <70 ))

return 1;

else

return 0;

}

6.33

#include <iostream>

#include<ctime>

#include<iomanip>

using namespace std;

void flip();

int number1=0, number2=0;

int main()

{

cout << " Analog coin 100 times: "<<endl;

srand ( time(0) );

for( int counter = 1;counter <= 100; counter++ )

{

flip();

if( counter % 10 ==0 )

cout<<endl;

}

cout << "\n the face number is: "<< number1 << endl;

cout << " the back number is: "<< number2 << endl;

}

void flip( )

{

int face = 0 +rand( ) % 2;

if( face ==0 )

{

cout<<setw(2)<<0;

number1++;

}

if( face ==1 )

{

cout<<setw(2)<<1;

number2++;

}

}

6.3.4猜字游戏

#include <iostream>

#include<iomanip>

#include<ctime>

using namespace std;

int main()

{

int number;

int guess;

char answer;

cout << " I have a number between 1 and 1000. "<<endl

<< " Can you guess my number?"<<endl

<< " Please type your first guess."<<endl;

srand ( time(0) );

guess = 1+rand( ) %1000;

cin >> number;

loop: while( number >1000 )

{

cout<<"error try again!";

cin >> number;

}

while( (number >= 0 )&&( number <=1000 ) )

{

if( number == guess )

{

cout <<"Excellent ! You guessed the number! "<<endl

<<"Would you like to play again(Y or N )? ";

cin >> answer;

if( answer=='N' ||answer =='n' )

break;

if( answer=='y' ||answer =='Y' )

{

cout<< "Please type your second guess:";

cin >>number;

guess = 1+rand( ) %1000;

goto loop;

}

};

if( number > guess)

{

cout<<"Too high,Try again: ";

cin >> number;

}

if( number < guess)

{

cout<<"Too low,Try again: ";

cin >> number;

}

}

}

6.35

#include <iostream>

#include<iomanip>

#include<ctime>

using namespace std;

int main()

{

int number;

int guess;

char answer;

int i=0;

cout << " I have a number between 1 and 1000. "<<endl

<< " Can you guess my number?"<<endl

<< " Please type your first guess."<<endl;

srand ( time(0) );

guess = 1 + rand( ) %1000;

cin >> number;

loop: while( number >1000 )

{

i=0;

cout<<"error try again!";

cin >> number;

}

while( (number >= 0 )&&( number <=1000 ) )

{

if( number == guess )

{

if( i< 10 )

cout << "Either you know the secret or you got lucky\n";

if( i== 10 )

cout << "Ahah!you know the secret!\n";

if( i>10 )

cout << "you should be abke to do better!\n";

cout <<"Excellent ! You guessed the number! "<<endl

<<"Would you like to play again(Y or N )? ";

cin >> answer;

if( answer=='N' ||answer =='n' )

break;

if( answer=='y' ||answer =='Y' )

{

cout<< "Please type your second guess:";

cin >>number;

guess = 1+rand( ) %1000;

goto loop;

}

};

if( number > guess)

{

cout<<"Too high,Try again: ";

i++;

cin >> number;

}

if( number < guess)

{

cout<<"Too low,Try again: ";

i++;

cin >> number;

}

}

}

6.36

#include<iostream>

using namespace std;

int power( int, int );

int main()

{

int x;

int y;

cout << " please input the numbers: ";

cin >> x >> y;

cout << "power( "<< x << ", "<< y <<" )= "<<power( x,y);

}

int power( int base, int exponent )

{

if(exponent == 0 )

return 1;

else

if( exponent == 1 )

return base;

else

return base \* power( base, exponent-1 );

}

6.37(A)

#include<iostream>

#include<iomanip>

using namespace std;

int Fibonacci( int );

int main()

{

int x;

cout << " please input the numbers: ";

cin >> x ;

cout << "Fibonacci( "<< x <<" )= "<< Fibonacci( x );

}

int Fibonacci( int number )

{

int numA=0, numB=0, Result=1;

if ( number == 0 )

return 0;

else

if ( number == 1 )

return Result;

else

{for( int counter=1; counter <= number-1; counter++ )

{numA = numB;

numB = Result;

Result = numA + numB;

}

return Result;

}

}

(B)

6.38

#include <iostream>

using namespace std;

void move(char x,char y)

{

cout << "Move "<x<<"-->"<<y<<endl;

}

void hanoi(int n,char one,char two,char three)

{

if(n==1) move(one,three);

else

{

hanoi(n-1,one,three,two);

move(one,three);

hanoi(n-1,two,one,three);

}

}

int main()

{

int m;

cout<<"请?输º?入¨?盘¨¬子Á¨®数ºy:";

cin>>m;

cout<<"移°?动¡¥盘¨¬子Á¨®的Ì?步?骤¨¨为a:"<<endl;

hanoi(m,'A','B','C');

return 0;

}

6.43

#include <iostream>

#include<cmath>

using namespace std;

double distance( double,double,double,double );

int main()

{

double x1,y1,x2,y2;

cout<<" Please input the coordinate of forst point : ";

cin >> x1 >> y1;

cout<<" Please input the coordinate of second point : ";

cin >> x2 >> y2;

cout<<" The distance between two point is : : ";

cout << distance( x1,y1,x2,y2 ) ;

}

double distance( double x1value ,double y1value ,double x2value,double y2value )

{

return sqrt( pow( x1value - x2value ,2 ) + pow( y1value - y2value ,2 ) );

}

6.49

#include<iostream>

#include<cstdlib>

#include<ctime>

using namespace std;

int rollDice();

int Pointmake();

int main()

{

enum Status{ CONTINUE, WON, LOST };

int myPoint;

Status gameStatus;

int bankBalance = 1000;

int wager;

cout << " Please input the wager ";

cin >> wager;

while( wager <= bankBalance )

{

srand( time( 0 ));

int sumOfDice = rollDice();

switch( sumOfDice )

{

case 7:

case 11:

gameStatus = WON;

break;

case 2:

case 3:

case 12:

gameStatus = LOST;

break;

default:

gameStatus = CONTINUE;

myPoint = sumOfDice;

cout<<"Point is "<<myPoint<<endl;

break;

}

while( gameStatus == CONTINUE )

{

sumOfDice = rollDice();

if( sumOfDice == myPoint )

gameStatus = WON;

else

if( sumOfDice ==7 )

gameStatus = LOST;

}

if( gameStatus == WON )

{

cout<<"Player wins "<<endl;

bankBalance = bankBalance + wager;

cout <<" The bankBalance is : "<<bankBalance<<endl;

cout <<" You're up big ,Now's the time to cash in your chips 1 "<<endl;

}

else

{

cout<<"Player loses"<<endl;

bankBalance = bankBalance - wager;

cout <<" The bankBalance is : "<<bankBalance<<endl;

cout <<" Oh you're going for broke,huh? "<<endl;

if ( bankBalance ==0 ) break;

}

}

if ( bankBalance ==0 )cout<<" Sorry , You busted! ";

}

int rollDice()

{

int die1 = 1 + rand()%6;

int die2 = 1 + rand()%6;

int sum = die1 +die2;

cout<<"Player rolled "<<die1<<"+ "<<die2<<" = "<<sum<<endl;

return sum;

}

6.50

#include<iostream>

#include<cmath>

using namespace std;

const double PI = 3.1415926;

inline double circleArea( double radius)

{

return pow(radius, 2) \* PI ;

}

int main()

{

double R;

cout <<" please input the radius: ";

cin >> R;

cout << " the Area is : "<<circleArea( R )<<endl;

}

6.51

#include<iostream>

using namespace std;

int tripleByValue( int );

void tripleByReference( int & );

int main()

{

int count ;

cout << " please input the number: ";

cin >> count;

cout <<" use tripleByValue " <<tripleByValue( count ) << endl <<count<<endl;

cout <<" use tripleByReference " <<endl;

tripleByReference( count );

cout << count<<endl;

}

int tripleByValue( int number)

{

return number \*3;

}

void tripleByReference( int &numberRef )

{

numberRef= numberRef \*3;

}

6.53

#include<iostream>

#include"minimum.h"

using namespace std;

int main( )

{

int int1,int2;

cout << "Please input two integer values: ";

cin >> int1 >>int2;

cout << " the minimum value is : "<<minimum( int1,int2 );

double double1,double2;

cout << "\nPlease input two double values: ";

cin >> double1 >>double2;

cout << " the minimum value is : "<<minimum( double1,double2 );

char char1,char2;

cout << "\nPlease input two char values: ";

cin >> char1 >>char2;

cout << " the minimum value is : "<<minimum( char1,char2 );

}

template <class T>

T minimum( T value1, T value2 )

{

T minimunValue = ( value1 < value2 ) ? value1 :value2 ;

return minimunValue;

}

6.54

#include<iostream>

#include"maximum.h"

using namespace std;

int main( )

{

int int1,int2;

cout << "Please input two integer values: ";

cin >> int1 >>int2;

cout << " the maximum value is : "<<maximum( int1,int2 );

double double1,double2;

cout << "\nPlease input two double values: ";

cin >> double1 >>double2;

cout << " the maximum value is : "<<maximum( double1,double2 );

char char1,char2;

cout << "\nPlease input two char values: ";

cin >> char1 >>char2;

cout << " the maximum value is : "<<maximum( char1,char2 );

}

头文件

template <class T>

T maximum( T value1, T value2 )

{

T maximumValue = ( value1 > value2 ) ? value1 :value2 ;

return maximumValue;

}

6.56

#include<iostream>

#include<cstdlib>

#include<ctime>

#include<iomanip>

#include<cmath>

using namespace std;

void NewQuestion(int&,int&);

//int Resultvalue( );

int main( )

{

int num1;

int num2;

cout << setw( 10 ) <<" Multiplication practice: "<<endl;

int Result;

NewQuestion(num1,num2);

cin>> Result;

loop: while ( Result != num1\* num2 )

{

cout << " Wrong ,Try once more. "<<endl<< setw( 10 );

cin >> Result;

}

cout << " very good !"<<endl<<" The next one: "<<endl;

NewQuestion(num1,num2);

cin>> Result;

goto loop;

}

void NewQuestion(int& int1,int& int2)

{

srand( time( 0 ) );

int1 = 0 + rand( ) % 10;

int2 = 0 + rand( ) % 10;

cout << setw( 5 ) << int1 << " X " << int2 << " = ";

}

//

int main( )

{

int num1;

int num2;

cout << setw( 10 ) <<" Multiplication practice: "<<endl;

int Result;

NewQuestion(num1,num2);

do{

cin>> Result;

while ( Result != num1\* num2 )

{

cout << " Wrong ,Try once more. "<<endl<< setw( 10 );

cin >> Result;

}

cout << " very good !"<<" The next one: "<<endl;

NewQuestion(num1,num2);

}while( Result != num1\* num2 );

}

6.57

#include<iostream>

#include<cstdlib>

#include<ctime>

#include<iomanip>

#include<cmath>

using namespace std;

void NewQuestion(int&,int&);

//int Resultvalue( );

int main( )

{

int num1;

int num2;

srand( time( 0 ) );

cout << setw( 10 ) <<" Multiplication practice: "<<endl;

int Result;

NewQuestion(num1,num2);

cin>> Result;

loop: while ( Result != num1\* num2 )

{

int Wcase = 1 + rand() % 4;

switch( Wcase )

{

case 1:

cout << " Wrong ! Try once more: "<<endl;

break;

case 2:

cout << " No ! Please try again: "<<endl;

break;

case 3:

cout << " Don't give up !: "<<endl;

break;

case 4:

cout << " NO! keep trying .: "<<endl;

break;

default:

break;

}

//cout << " Wrong ! Try once more: "<<endl<< setw( 10 );

cin >> Result;

}

int Rcase = 1 + rand() % 4;

switch( Rcase )

{

case 1:

cout << " Very good ! "<<" The next one: "<<endl;

break;

case 2:

cout << " Excellent ! "<<" The next one: "<<endl;

break;

case 3:

cout << " Nice work ! "<<" The next one: "<<endl;

break;

case 4:

cout << " Keep up the good work!: "<<" The next one: "<<endl;

break;

default:

break;}

//cout << " very good !"<<" The next one: "<<endl;

NewQuestion(num1,num2);

cin>> Result;

goto loop;

}

void NewQuestion(int& int1,int& int2)

{

int1 = 0 + rand( ) % 10;

int2 = 0 + rand( ) % 10;

cout << setw( 5 ) << int1 << " X " << int2 << " = ";

}

6.58

#include<iostream>

#include<cstdlib>

#include<ctime>

#include<iomanip>

#include<cmath>

using namespace std;

void NewQuestion(int&,int&);

//int Resultvalue( );

int main( )

{

int num1;

int num2;

double Wcounter1 = 1;

double Rcounter2 = 0;

srand( time( 0 ) );

cout << setw( 10 ) <<" Multiplication practice: "<<endl;

int Result;

NewQuestion(num1,num2);

cin>> Result;

loop: while ( Result != num1\* num2 )

{

++Wcounter1;

int Wcase = 1 + rand() % 4;

if ( Wcounter1 + Rcounter2 == 10 )break;

switch( Wcase )

{

case 1:

cout << " Wrong ! Try once more: "<<endl;

break;

case 2:

cout << " No ! Please try again: "<<endl;

break;

case 3:

cout << " Don't give up !: "<<endl;

break;

case 4:

cout << " NO! keep trying .: "<<endl;

break;

default:

break;

}

//cout << " Wrong ! Try once more: "<<endl<< setw( 10 );

cin >> Result;

}

if ( Wcounter1 + Rcounter2 == 10 )

goto next;

++Rcounter2; //right number.

int Rcase = 1 + rand() % 4;

switch( Rcase )

{

case 1:

cout << " Very good ! "<<" The next one: "<<endl;

break;

case 2:

cout << " Excellent ! "<<" The next one: "<<endl;

break;

case 3:

cout << " Nice work ! "<<" The next one: "<<endl;

break;

case 4:

cout << " Keep up the good work!: "<<" The next one: "<<endl;

break;

default:

break;}

//cout << " very good !"<<" The next one: "<<endl;

NewQuestion(num1,num2);

cin>> Result;

goto loop;

next: if( Rcounter2/10.0 <0.75 )

cout << " Please ask your teacher for extra help. ";

else

if( Rcounter2/10.0 >=0.75 )

cout << " Congratulations. you are ready to go to the next level, ";

}

void NewQuestion(int& int1,int& int2)

{

int1 = 0 + rand( ) % 10;

int2 = 0 + rand( ) % 10;

cout << setw( 5 ) << int1 << " X " << int2 << " = ";

}

6.59

#include<iostream>

#include<cstdlib>

#include<ctime>

#include<iomanip>

#include<cmath>

using namespace std;

void NewQuestion(int&,int&,int);

//int Resultvalue( );

int main( )

{

int num1;

int num2;

int choice;

int Result;

double Wcounter1 = 1;

double Rcounter2 = 0;

srand( time( 0 ) );

cout << setw( 10 ) <<" Multiplication practice: "<<endl;

cout <<" Input the level of Multiplication practice: ";

cin >> choice;

NewQuestion(num1,num2,choice);

cin>> Result;

loop: while ( Result != num1\* num2 )

{

++Wcounter1;

int Wcase = 1 + rand() % 4;

if ( Wcounter1 + Rcounter2 == 10 )break;

switch( Wcase )

{

case 1:

cout << " Wrong ! Try once more: "<<endl;

break;

case 2:

cout << " No ! Please try again: "<<endl;

break;

case 3:

cout << " Don't give up !: "<<endl;

break;

case 4:

cout << " NO! keep trying .: "<<endl;

break;

default:

break;

}

//cout << " Wrong ! Try once more: "<<endl<< setw( 10 );

cin >> Result;

}

if ( Wcounter1 + Rcounter2 == 10 )

goto next;

++Rcounter2; //right number.

int Rcase = 1 + rand() % 4;

switch( Rcase )

{

case 1:

cout << " Very good ! "<<" The next one: "<<endl;

break;

case 2:

cout << " Excellent ! "<<" The next one: "<<endl;

break;

case 3:

cout << " Nice work ! "<<" The next one: "<<endl;

break;

case 4:

cout << " Keep up the good work!: "<<" The next one: "<<endl;

break;

default:

break;}

//cout << " very good !"<<" The next one: "<<endl;

NewQuestion(num1,num2,choice);

cin>> Result;

goto loop;

next: if( Rcounter2/10.0 <0.75 )

cout << " Please ask your teacher for extra help. ";

else

if( Rcounter2/10.0 >=0.75 )

cout << " Congratulations. you are ready to go to the next level, ";

}

void NewQuestion(int& int1,int& int2,int Choice )

{

if (Choice =1 )

{

int1 = 0 + rand( ) % 10;

int2 = 0 + rand( ) % 10;

}

if(Choice =2 )

{

int1 = 0 + rand( ) % 20;

int2 = 0 + rand( ) % 20;

}

cout << setw( 5 ) << int1 << " X " << int2 << " = ";

}

6.60

#include<iostream>

#include<cstdlib>

#include<ctime>

#include<iomanip>

#include<cmath>

using namespace std;

void NewQuestion(double&,double&,int);

double Resultvalue(double,double,int );

int main( )

{

double num1;

double num2;

int choice;

int choice1;

double Result;

double Wcounter1 = 1;

double Rcounter2 = 0;

srand( time( 0 ) );

cout << setw( 10 ) <<" Multiplication practice: "<<endl;

cout <<" Input the level of Multiplication practice:"<<"\n(1-( + ),2-( - ),3-( \* ),4-( / ),5-( 混¨¬合? ) ) ";

cin >> choice1;

choice = choice1;

if ( 5 == choice1 )

choice = 1 + rand ( ) % 4 ;

NewQuestion(num1,num2,choice);

cin>> Result;

loop: while ( Result != Resultvalue(num1,num2 ,choice ))

{

++Wcounter1;

int Wcase = 1 + rand() % 4;

if ( Wcounter1 + Rcounter2 == 10 )break;

switch( Wcase )

{

case 1:

cout << " Wrong ! Try once more: "<<endl;

break;

case 2:

cout << " No ! Please try again: "<<endl;

break;

case 3:

cout << " Don't give up !: "<<endl;

break;

case 4:

cout << " NO! keep trying .: "<<endl;

break;

default:

break;

}

//cout << " Wrong ! Try once more: "<<endl<< setw( 10 );

cin >> Result;

}

if ( Wcounter1 + Rcounter2 == 10 )

goto next;

++Rcounter2; //right number.

int Rcase = 1 + rand() % 4;

switch( Rcase )

{

case 1:

cout << " Very good ! "<<" The next one: "<<endl;

break;

case 2:

cout << " Excellent ! "<<" The next one: "<<endl;

break;

case 3:

cout << " Nice work ! "<<" The next one: "<<endl;

break;

case 4:

cout << " Keep up the good work!: "<<" The next one: "<<endl;

break;

default:

break;}

//cout << " very good !"<<" The next one: "<<endl;

if ( 5 == choice1 )

choice = 1 + rand ( ) % 4 ;

NewQuestion(num1,num2,choice);

cin>> Result;

goto loop;

next: if( Rcounter2/10.0 <0.75 )

cout << " Please ask your teacher for extra help. \n";

else

if( Rcounter2/10.0 >=0.75 )

cout << " Congratulations. you are ready to go to the next level, \n";

}

void NewQuestion(double& int1,double& int2,int Choice )

{

int1 = 0 + rand( ) % 10;

int2 = 1 + rand( ) % 10;

switch( Choice )

{

case 1 :

cout << setw( 5 ) << int1 << " + " << int2 << " = ";

break;

case 2 :

cout << setw( 5 ) << int1 << " - " << int2 << " = ";

break;

case 3 :

cout << setw( 5 ) << int1 << " \* " << int2 << " = ";

break;

case 4 :

cout << setw( 5 ) << int1 << " / " << int2 << " = ";

break;

default :

break;

}

}

double Resultvalue(double number1,double number2 ,int choice )

{

switch( choice )

{

case 1:

return number1 + number2 ;

break;

case 2:

return number1 - number2 ;

break;

case 3:

return number1 \* number2 ;

break;

case 4:

return number1 / number2 ;

break;

default:

break;

}

}