

电子信息与工程学院

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第一题

代码:

```
1  #include <iostream>
2
3  using namespace std;
4
5  int prime(int x)
6  {
7      for(int i=2;i*i<=x;i++)
8      {
9          if(x%i==0)
10             return 0;
11      }
12      return 1;
13  }
14
15  int gotbaha(int y)
16  {
17      for(int i=y;i>=y/2;i--)
18      {
19          if (prime(i))
20          {
21              int j;
22              j=y-i;
23              if(prime(j))
24                  cout << y << " = " << i << " + " << j;
25              return 0;
26          }
27      }
28      return 1;
29  }
30
31  int main()
32  {
33      int a;
34      cout << "Enter a number:" << endl;
35      cin >> a;
36      if (a%2==1 || a<6)
37      {
38          cout << "Please Enter a Odd Number" << endl;
39          return 0;
40      }
41      if (gotbaha(a))
42          cout << "Something terrible has happened..." << endl;
43
44      return 0;
45  }
```

运行结果：

```
Enter a number:  
12572  
12572 = 12569 + 3  
Process returned 0 (0x0)    execution time : 4.413 s  
Press any key to continue.
```

```
Enter a number:  
-12316  
Please Enter a Positive Odd Number  
  
Process returned 0 (0x0)    execution time : 1.750 s  
Press any key to continue.
```

第二题

代码：

```
1  #include <iostream>
2
3  using namespace std;
4
5  int gcd1 (int x , int y )
6  {
7      if (y == 0)
8          return x;
9      else
10         return gcd1 (y , x%y);
11 }
12
13 int gcd2 (int x , int y)
14 {
15     while(x!=y)
16     {
17         if (x > y)
18             x = x-y;
19         else
20             y = y-x;
21     }
22     return x;
23 }
24
25 int main()
26 {
27     int a,b;
28     cin >> a >> b;
29     cout << "gcd1的结果为" << gcd1 (a,b) << endl;
30     cout << "gcd2的结果为" << gcd2 (a,b) << endl;
31     return 0;
32 }
```

分析：

gcd1 使用的是辗转相除法的递归算法

gcd2 使用的是更相减损术的非递归算法

运行结果：

```
42
36
gcd1的结果为6
gcd2的结果为6

Process returned 0 (0x0)   execution time : 3.656 s
Press any key to continue.
```

```
15684
32136
gcd1的结果为12
gcd2的结果为12

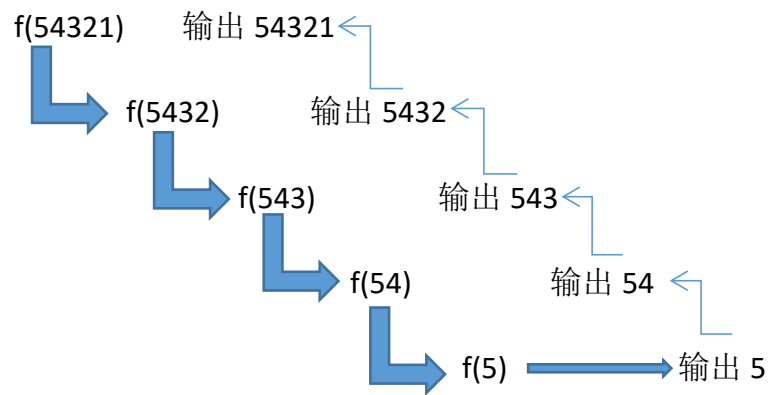
Process returned 0 (0x0)   execution time : 2.223 s
Press any key to continue.
```

第三题：

代码：

```
1  #include <iostream>
2
3  using namespace std;
4
5  void f(int n){
6      if(n/10)
7          f(n/10);
8      cout << n%10 << endl;
9  }
10
11 int main()
12 {
13     int a;
14     cin >> a;
15     f(a);
16     return 0;
17 }
18
```

分析：



运行结果：

```
512
5
51
512

Process returned 0 (0x0)   execution time : 1.481 s
Press any key to continue.
```