

```

1 #include <iostream>
2 #include "Time.h"
3 using namespace std;
4
5 int main()
6 {
7     Time t;
8
9     t.setHour(18).setMinute(30).setSecond(22);
10
11     cout << "Universal time: ";
12     t.printUniversal();
13
14     cout << "\nStandard time: ";
15     t.printStandard();
16
17     cout << "\n\nNew standard time: ";
18
19     t.setTime(20, 20, 20).printStandard();
20     cout << endl;
21
22     return 0;
23 }

```

```

1 #ifndef TIME_H
2 #define TIME_H
3
4 class Time{
5     public:
6         Time(int = 0, int = 0, int = 0);
7
8         Time &setTime(int, int, int);
9         Time &setHour(int);
10        Time &setMinute(int);
11        Time &setSecond(int);
12
13        int getHour() const;
14        int getMinute() const;
15        int getSecond() const;
16
17        void printUniversal() const;
18        void printStandard() const;
19
20    private:
21        int secPassedFromMid;
22 };
23
24 #endif

```

```

1  #include <iostream>
2  #include <iomanip>
3  #include "Time.h"
4  using namespace std;
5
6  Time::Time(int hr, int min, int sec){
7      setTime(hr, min, sec);
8  }
9
10 Time &Time::setTime(int h, int m, int s){
11     secPassedFromMid = 0;
12
13     setHour(h);
14     setMinute(m);
15     setSecond(s);
16
17     return *this;
18 }
19
20 Time &Time::setHour(int h){
21     if (h >= 0 and h < 24){
22         secPassedFromMid += 3600 * h;
23     }
24
25     return *this;
26 }

```

```

27
28 Time &Time::setMinute(int m){
29     if (m >= 0 and m < 60){
30         secPassedFromMid += 60 * m;
31     }
32
33     return *this;
34 }
35
36 Time &Time::setSecond(int s){
37     if (s >= 0 and s < 60){
38         secPassedFromMid += s;
39     }
40
41     return *this;
42 }
43
44 int Time::getHour() const{
45     return (secPassedFromMid/3600);
46 }
47
48 int Time::getMinute() const {
49     return ( (secPassedFromMid - (secPassedFromMid/3600*3600) ) / 60 );
50 }
51
52 int Time::getSecond() const{
53     return (secPassedFromMid % 60);
54 }
55

```

```

56 void Time::printUniversal() const{
57     cout << setfill('0') << setw(2) << (secPassedFromMid/3600) << ":"
58     << setw(2) << ( (secPassedFromMid - (secPassedFromMid/3600*3600) ) / 60 ) << ":"
59     << setw(2) << (secPassedFromMid % 60);
60 }
61
62 void Time::printStandard() const{
63     cout << ( ((secPassedFromMid/3600) == 0 or (secPassedFromMid/3600) == 12) ? 12 : (secPassedFromMid/3600) % 12 )
64     << ":" << setfill('0') << setw(2) << ( (secPassedFromMid - (secPassedFromMid/3600*3600) ) / 60 )
65     << ":" << setw(2) << (secPassedFromMid % 60) << ((secPassedFromMid/3600) < 12 ? " AM" : " PM");
66 }

```

```
Universal time: 18:30:22  
Standard time: 6:30:22 PM  
  
New standard time: 8:20:20 PM
```