

```
#include <iostream>
```

```
using namespace std;
```

```
class NP
```

```
{
```

```
    float rup, pai;
```

```
public:
```

```
    void gets()
```

```
{
```

```
    cout<<"Enter Rs in Rupee and paisa: "<<endl;
```

```
    cin>>rup>>pai;
```

```
}
```

```
    float getrup(){return rup;}
```

```
    float getpai(){return pai;}
```

```
};
```

```
class US
```

```
{
```

```
    float dol, cen;
```

```
public:
```

```
    US(NP np)
```

```
{
```

```
    float tnp=np.getrup()+(np.getpai()/100);
```

```
    cen=(tnp/(98.51))*100;
```

```
    dol=int(cen/100);
```

```

        cen=((cen/100)-int(cen/100))*100;
    }
    US(){ //default constructor

    void show()
    {
        cout<<"Equivalent USD is: "<<dol<<" $ "<<cen<<" cents "<<endl;
    }
};

int main()
{
    NP np;
    US us;

    np.getrs();

    us=np;

    us.show();

    return 0;
}

```

```
#include <iostream>

#include <cmath>

using namespace std;
```

```
class Polar
{
    float ang,rad;
public:
    void getdata()
    {
        cout<<"Enter radius and angle: "<<endl;
        cin>>rad>>ang;
    }

    void showdata()
    {
        cout<<"Radius is: "<<rad<<endl<<"Angle is: "<<ang<<endl;
    }

    Polar(){}

    float getang(){return ang;}
    float getrad(){return rad;}

};
```

```

class Rectangluar
{
    float x,y;
public:
    void getdata()
    {
        cout<<"Enter x and y: "<<endl;
        cin>>x>>y;
    }

    void showdata()
    {
        cout<<"x is: "<<x<<endl<<"y is: "<<y<<endl;
    }

    Rectangluar(){}

    Rectangluar(Polar p)
    {
        x=p.getrad()*cos((p.getang()*3.14)/180);
        y=p.getrad()*sin((p.getang()*3.14)/180);
    }

};

```

```
int main()
{
    Polar p;
    Rectangluar r;

    p.getdata();

    r=p;

    r.showdata();

    return 0;
}
```

```
#include <iostream>
#include <cmath>
using namespace std;
```

```
class Polar
{
    float ang,rad;
public:
    void getdata()
```

```

{
    cout<<"Enter radius and angle: "<<endl;
    cin>>rad>>ang;
}

void showdata()
{
    cout<<"Radius is: "<<rad<<endl<<"Angle is: "<<ang<<endl;
}

Polar(){}
Polar(float ra, float an)
{
    rad=ra;
    ang=an;
}

};

```

```

class Rectangluar
{
    float x,y;
public:
    void getdata()
    {
        cout<<"Enter x and y: "<<endl;
        cin>>x>>y;
    }
}

```

```
}
```

```
void showdata()
```

```
{
```

```
    cout<<"x is: "<<x<<endl<<"y is: "<<y<<endl;
```

```
}
```

```
operator Polar()    //cast operator in destination
```

```
{
```

```
    float ra=sqrt((x*x)+(y*y));
```

```
    float an=atan(y/x); //returns in radian
```

```
    //ang=ang*(3.14/180);
```

```
    return Polar(ra,an);
```

```
}
```

```
};
```

```
int main()
```

```
{
```

```
    Polar p;
```

```
    Rectangluar r;
```

```
    r.getdata();
```

```
    p=r;
```

```
p.showdata();

return 0;
}

#include <iostream>

using namespace std;

class Time24
{
    float hr,mi,sec;
public:
    void getdata()
    {
        cout<<"Enter hr, min, sec (24):"<<endl;
        cin>>hr>>mi>>sec;
    }
    void show()
    {
        cout<<"24 hr format: "<<hr<<" hrs "<<mi<<" min "<<sec<<" secs "<<endl;
    }

    float gethr(){return hr;}
    float getmi(){return mi;}
    float getsec(){return sec;}
};
```



```

class Time12
{
    float hr,mi,sec;
    char ampm;
public:
    void getdata()
    {
        cout<<"Enter hr, min, sec (12) (ampm):"<<endl;
        cin>>hr>>mi>>sec>>ampm;
    }
    void show()
    {
        cout<<"12 hr format: "<<hr<<" hrs "<<mi<<" min "<<sec<<" secs "<<ampm<<endl;
    }

    Time12(){}

    Time12(Time24 t24)
    {

        if(t24.gethr())>12)
        {

            hr=(t24.gethr()-12);

            if(hr<12)
            {

```

```
        ampm='P';
    }
    if(hr>12)
    {
        ampm='A';
    }
}
else
{
    hr=t24.gethr();
    ampm='A';
}

if(t24.gethr()==0)
{
    ampm='A';
    hr=12;
}

mi=t24.getmi();
sec=t24.getsec();

}
};
```

```
int main()
{
    Time12 t12;
```

```
Time24 t24;  
t24.getdata();  
  
t12=t24;  
  
t12.show();  
  
return 0;  
}
```

```
#include <iostream>
```

```
using namespace std;
```

```
class Time12  
{  
    float hr,mi,sec;  
    char ampm;  
public:  
    void getdata()  
    {
```

```

        cout<<"Enter hr, min, sec (12) (ampm):"<<endl;
        cin>>hr>>mi>>sec>>ampm;
    }
    void show()
    {
        cout<<"12 hr format: "<<hr<<" hrs "<<mi<<" min "<<sec<<" secs "<<ampm<<endl;
    }

```

```

Time12(){}

```

```

    float gethr(){return hr;}
    float getmi(){return mi;}
    float getsec(){return sec;}
};

```

```

class Time24
{
    float hr,mi,sec;
public:
    void getdata()
    {
        cout<<"Enter hr, min, sec (24):"<<endl;
        cin>>hr>>mi>>sec;
    }
    void show()
    {
        cout<<"24 hr format: "<<hr<<" hrs "<<mi<<" min "<<sec<<" secs "<<endl;
    }
}

```

```
}
```

```
Time24(){}  
Time24(Time12 t12)
```

```
{
```

```
    if(t12.getthr()<12)
```

```
        hr=t12.getthr()+12;
```

```
    else
```

```
        hr=t12.getthr();
```

```
    mi=t12.getmi();
```

```
    sec=t12.getsec();
```

```
}
```

```
};
```

```
int main()
```

```
{
```

```
    Time12 t12;
```

```
    Time24 t24;
```

```
    t12.getdata();
```

```
    t24=t12;
```

```
    t24.show();
```

```
    return 0;
```

}