1.)

**public** **class** Rectangle {

**private** **int** len;

**private** **int** bred;

**public** Rectangle(**int** l,**int** b) {

**this**.len= len;

**this**.bred=bred;

}

**private** **void** calarea() {

**int** Area = 2\*(len+bred);

System.***out***.println(Area);

}

**public** **void** recarea() {

calarea();

}

**public** **boolean** equals(Object o) {

**if** (o == **this**) {

**return** **true**;

}

**if** (!(o **instanceof** Rectangle)) {

**return** **false**;

}

Rectangle rect = (Rectangle) o;

**return** Double.*compare*(len, rect.len) == 0&& Double.*compare*(bred, rect.bred) == 0;

}

}

**public** **class** Driver {

**public** **static** **void** main(String[]args) {

Rectangle rec1 = **new** Rectangle(12,13);

Rectangle rec2 = **new** Rectangle(12,13);

**if**(rec1.equals(rec2)) {

System.***out***.println("Objects are Equal");

}**else** {

System.***out***.println("Objects are NOT Equal");

}

}

}

O/P - Objects are Equal

2.)

**public** **abstract** **class** Connector {

**public** **abstract** **void** openConnection();

**public** **abstract** **void** closeConnection();

**public** **abstract** **void** fireQuery();

**public** **void** display() {

}

**public** **void** loadedDBConnection() {

}

}

**public** **class** MySQLConnector **extends** Connector {

@Override

**public** **void** openConnection() {

}

@Override

**public** **void** closeConnection() {

}

@Override

**public** **void** fireQuery() {

}

}

**public** **class** ConnectionManager {

**public** **void** createConnection(Connector con) {

//con.display();

Connector conn = **new** MySQLConnector();

((MySQLConnector)conn).display();

}

}

3.)

**package** Assignment103;

**public** **abstract** **class** Shape {

**public** **abstract** **void** calArea();

}

**package** Assignment103;

**public** **class** Circle **extends** Shape {

**float** pi=3.14f;

**float** r = 13;

**public** **void** calArea() {

**float** Area = pi\*(r\*r);

}

**public** **void** display1() {

calArea();

}

}

**package** Assignment103;

**public** **class** Ractanglee **extends** Shape{

**public** **void** calArea() {

**int** len=20;

**int** bred = 10;

**int** Area = 2\*(len+ bred);

System.***out***.println(Area);

}

**public** **void** display1() {

calArea();

}

}

**package** Assignment103;

**public** **class** Drive {

**public** **static** **void** main(String[] args) {

Shape s= **new** Ractanglee();

((Ractanglee)s).display1();

}

}