Assuming that the following classes have been defined:

```java
public class One {
    public void method1() {
        System.out.println("One1");
    }
}

public class Two extends One {
    public void method3() {
        System.out.println("Two3");
    }
}

public class Three extends One {
    public void method2() {
        System.out.println("Three2");
        method1();
    }
}

public class Four extends Three {
    public void method1() {
        System.out.println("Four1");
        super.method1();
    }

    public void method3() {
        System.out.println("Four3");
    }
}
```

And assuming the following variables have been defined:

```
One var1 = new Two();
One var2 = new Three();
One var3 = new Four();
Three var4 = new Four();
Object var5 = new Three();
Object var6 = new One();
```

In the table below, indicate in the right-hand column the output produced by
the statement in the left-hand column. If the statement produces more than one
line of output, indicate the line breaks with slashes as in "a/b/c" to indicate
three lines of output with "a" followed by "b" followed by "c". If the
statement causes an error, fill in the right-hand column with either the phrase
"compiler error" or "runtime error" to indicate when the error would be
detected.

```
    Statement                        Output
    -------------------------------------------------------------

    var1.method1();                  _____

    var2.method1();                  _____

    var3.method1();                  _____

    var4.method1();                  _____

    var5.method1();                  _____

    var6.method1();                  _____

    var4.method2();                  _____

    var4.method3();                  _____

    ((Two)var1).method2();           _____

    ((Three)var1).method2();         _____

    ((Two)var1).method3();           _____

    ((Four)var2).method1();          _____

    ((Four)var3).method1();          _____

    ((Four)var4).method3();          _____

    ((One)var5).method1();           _____

    ((Four)var5).method2();          _____

    ((Three)var5).method2();         _____

    ((One)var6).method1();           _____

    ((One)var6).method2();           _____

    ((Two)var6).method3();           _____
```

Solution to CSE143 Inheritance Example

1. Inheritance Mystery. The output is as follows.

```
Statement                                  Output
-------------------------------------------------
var1.method1();                            One1
var2.method1();                            One1
var3.method1();                            Four1/One1
var4.method1();                            Four1/One1
var5.method1();                            compiler error
var6.method1();                            compiler error
var4.method2();                            Three2/Four1/One1
var4.method3();                            compiler error
((Two)var1).method2();                     compiler error
((Three)var1).method2();                   runtime error
((Two)var1).method3();                     Two3
((Four)var2).method1();                    runtime error
((Four)var3).method1();                    Four1/One1
((Four)var4).method3();                    Four3
((One)var5).method1();                     One1
((Four)var5).method2();                    runtime error
((Three)var5).method2();                   Three2/One1
((One)var6).method1();                     One1
((One)var6).method2();                     compiler error
((Two)var6).method3();                     runtime error
```