

Functional Programming Tutorial 2 answers:

Question 1,2,3

```
object answers123{
  def main(args: Array[String])={

    //question 2 answers
    println("Question 2")
    // var k = 2; i = 2; j = 2; m = 5; n = 5;
    var (k,i,j,m,n) = (2,2,2,5,5);
    var (f,g) = (12.0,4.0);
    var c = 'X';

    //question 3 answers
    println("\nQuestion 3")
    // a)
    printf("a) %d\n", k+12*m)
    // b)
    printf("b) %.2f\n", m.toFloat/j.toFloat)
    // c)
    printf("c) %d\n", n*j)
    // d)
    printf("d) %.2f\n", m.toFloat/j.toFloat*j.toFloat)
    // e)
    printf("e) %.2f\n", f+10*5+g)
    // f)
    printf("f) scala doesn't support increment decrement operators")
    // printf("f) %d\n", (++i)*n)

  }
}
```

Comparison between scala and java

Java	Scala
Supports increment/decrement operators	Doesn't support increment/decrement operators
Doesn't support operator overloading	Supports operator overloading
By default, variables are mutable	By default, variables are immutable
Very readable language	Less readable language.

Question 3 part b

```
object answers3partb{
  def main(args: Array[String])={
    println("\nQuestion 3 part b\n")
    println("differences of java and scala")
    println("java supports increment and decrement operators while scala
doesn't support those operators.")
    println("scala supports operator overloading whereas java doesn't support
operator overloading.")
    println("scala variables are immutable by default whereas java mutable
by default.")
    println("scala is statically typed language whereas java is dynamically
typed language.\n")

    var (a,b,c,d) = (2,3,4,5)
    var (k,g) = (4.3,4.0)

    println("a) scala doesn't support increment decrement operators")
    // println(--b*a+c*d--)
    println("b) scala doesn't support increment decrement operators")
    // println(a++)
    printf("c) %.2f\n", -2*(g-k)+c)
    println("d) scala doesn't support increment decrement operators")
    // println(c=c++)
    println("e) scala doesn't support increment decrement operators")
    // println(c=++c*a++)
  }
}
```

Question 4

```
object answers4{
  def main(args: Array[String])={
    //question 4 answers
    println("\nQuestion 4")
    printf("part a ")
    def grossSal(normal: Int, ot: Int):Int = (normal*250)+(ot*85)
    def tax(gross: Int): Int = (gross*.12).toInt
    def takehome(normal: Int, ot: Int):Int = grossSal(normal,ot) -
tax(grossSal(normal,ot));
    printf("answer when normal hours = 40 and OT hours = 30 :
%d",takehome(40,30))

    printf("\npart b ")
  }
}
```

```
def attendance(price: Int):Int = 120 + (15 - price)/5*20
def earn(price: Int):Int = price*attendance(price)
def cost(price: Int):Int = 500 + attendance(price)*3
def profit(price: Int):Int = earn(price) - cost(price)
printf("maximum profit:\nanswer when ticket price is 24 : %d",profit(24))
}
```