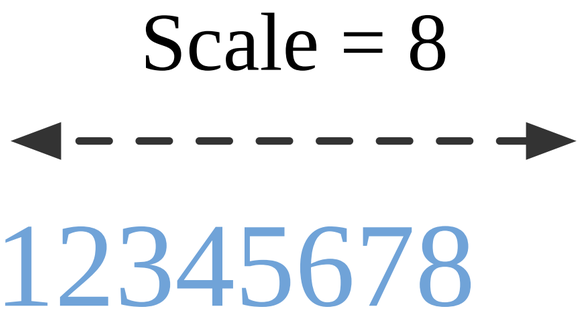
FOUNDATION

# Function as output

# Functions as output

```
def format(scale: Int, number: Double): String
```

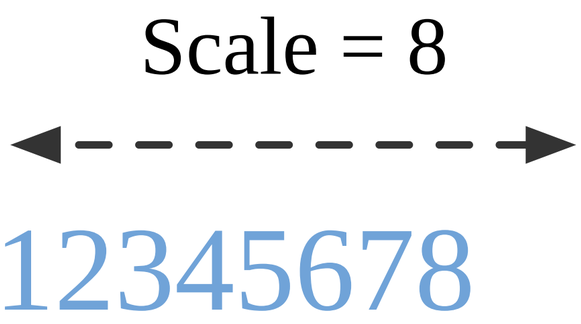


# Functions as output

```
def format(scale: Int, number: Double): String
```

```
format(2, 1234.12345678)
// res0: String = "1234.12"

format(5, 1234.12345678)
// res1: String = "1234.12345"
```



# Functions as output

```
def format(scale: Int, number: Double): String =
  ...

def format2D(number: Double): String = format(2, number)
def format5D(number: Double): String = format(5, number)
```

```
format2D(1234.12345678)
// res2: String = "1234.12"

format5D(1234.12345678)
// res3: String = "1234.12345"
```

# Functions as output

```
def publishEvent(
  hostname: String,
  port    : Int,
  topic   : String,
  key     : String,
  event   : Event
): Unit
```

# Functions as output

```
def publishEvent(
  hostname: String,
  port    : Int,
  topic   : String,
  key     : String,
  event   : Event
): Unit
```

```
def publishLocalEvent(topic: String, key: String, event: Event): Unit =
  publishEvent("localhost", 9000, topic, key, event)
```

```
def publishUatEvent(topic: String, key: String, event: Event): Unit =
  publishEvent("uat-acme.com", 12450, topic, key, event)
```

# Functions as output

```
def publishEvent(
  hostname: String,
  port    : Int,
  topic   : String,
  key     : String,
  event   : Event
): Unit
```

```
def publishLocalEvent = publishEvent("localhost", 9000)
def publishUatEvent   = publishEvent("uat-acme.com", 12450)
```

Pseudocode

# Functions as output

```
def format(scale: Int, number: Double): String
```

```
format(2, 1234.12345678)
// res5: String = "1234.12"
```

```
def format(scale: Int): Double => String
```

```
format(2)(1234.12345678)
// res7: String = "1234.12"
```

# Functions as output

```
def format(scale: Int, number: Double): String
```

```
format(2, 1234.12345678)
// res5: String = "1234.12"
```

```
def format(scale: Int): Double => String
```

```
format(2)(1234.12345678)
// res7: String = "1234.12"
```

## Currying

```
val function3: (Int ,  Int  ,  Int) => Int

val function3: Int => (Int => (Int  => Int))
```

# Functions as output

```
def format(scale: Int, number: Double): String
```

```
format(2, 1234.12345678)
// res9: String = "1234.12"
```

```
def format(scale: Int): Double => String
```

```
format(2)(1234.12345678)
// res11: String = "1234.12"
```

## Currying

```
val function3: (Int ,  Int  ,  Int) => Int

val function3: Int =>  Int =>  Int  => Int
```

# Partial function application

```
def format(scale: Int): Double => String
```

```
val format2D = format(2)
val format5D = format(5)
```

# Partial function application

```
def format(scale: Int): Double => String
```

```
val format2D = format(2)
val format5D = format(5)
```

```
format2D(1234.12345678)
// res12: String = "1234.12"

format5D(1234.12345678)
// res13: String = "1234.12345"
```

# Syntax

## Uncurried

```
def format(scale: Int, number: Double): String
```

## Curried

```
def format(scale: Int)(number: Double): String

def format(scale: Int): Double => String

val format: Int => Double => String
```

# Conversion (Currying)

```
def format(scale: Int, number: Double): String
```

# Conversion (Currying)

```
def format(scale: Int, number: Double): String
```

```
format _
// res15: (Int, Double) => String = <function2>
```

# Conversion (Currying)

```
def format(scale: Int, number: Double): String
```

```
format _
// res15: (Int, Double) => String = <function2>
```

```
(format _).curried
// res16: Int => Double => String = scala.Function2$$Lambda$7212/0x0000000102291040@2666406b
```

# Summary

- A curried function can be partially applied
- Only works from left to right arguments
- One more thing …

# Exercise 2: Functions as output

`exercises.function.FunctionExercises.scala`