

```
Module Module1
```

```
Sub Main()
```

```
Dim Answer As Char
```

```
Dim AWord As New BinaryWord
```

```
Do
```

```
    AWord.InputBitStream()
```

```
    AWord.ExtractMantissa()
```

```
    AWord.ExtractExponent()
```

```
    AWord.ApplyExponent()
```

```
    AWord.OutputRealNumber()
```

```
    Console.Write("Repeat?(Y/N): ")
```

```
    Answer = Console.ReadLine
```

```
Loop Until answer = "N"
```

```
End Sub
```

```
Class BinaryWord
```

```
Private BitStream As String
```

```
Private Mantissa As Double
```

```
Private Exponent As Integer
```

```
Private RealNumber As Double
```

```
Public Sub InputBitStream()
```

```
    Dim ValidPattern As Boolean
```

```
    BitStream = ""
```

```
    Console.Write("Enter a 12 bit word: ")
```

```
    Do
```

```
        Do
```

```
            BitStream = Console.ReadLine
```

```
            If Len(BitStream) <> 12 Then Console.WriteLine("That was not 12 bits.
```

```
Enter again: ")
```

```
        Loop Until Len(BitStream) = 12
```

```
        ValidPattern = True
```

```
        For counter = 0 To 11
```

```
            If BitStream(counter) <> "0" And BitStream(counter) <> "1" Then
```

```
ValidPattern = False
```

```
        Next
```

```
        If Not ValidPattern Then Console.WriteLine("That was not a binary word. Enter
```

```
again: ")
```

```
    Loop Until ValidPattern
```

```
End Sub
```

```
Public Sub ExtractMantissa()
```

```
    If Val(BitStream(0)) = 1 Then
```

```
        Mantissa = -1
```

```
    Else : Mantissa = 0
```

```
    End If
```

```
    For counter = 1 To 7
```

```
        Mantissa = Mantissa + Val(BitStream(counter)) * Math.Pow(2, (-1 *  
counter))
```

```
    Next
```

```
End Sub
```

```
Public Sub ExtractExponent()
```

```
    If Val(BitStream(8)) = 1 Then
```

```
        Exponent = -8
```

```
    Else : Exponent = 0
```

```
    End If
```

```
    For counter = 9 To 11
```

```
        Exponent = Exponent + Val(BitStream(counter)) * Math.Pow(2, (11 -  
counter))
```

```
    Next
```

```
End Sub
Public Sub ApplyExponent()
    RealNumber = Mantissa * Math.Pow(2, Exponent)
End Sub
Public Sub OutputRealNumber()
    Console.WriteLine(RealNumber)
End Sub
End Class
End Module
```