
tick1star submission from James Wood

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Submission contents	uk/ac/cam/jdw74/tick1star/InspectDouble.java
Ticker	UNKNOWN
Ticker signature	

InspectDouble.java

```
0  package uk.ac.cam.jdw74.tick1star;
1
2  public class InspectDouble {
3      public static void main(String[] args) throws Exception {
4          double d = Double.parseDouble(args[0]);
5          // return the bits which represent the floating point number
6          long bits = Double.doubleToLongBits(d);
7          // Sign bit located in bit 63
8          // Suggested Mask 0x8000000000000000L
9          // Format 1 => number is negative
10         // TODO: fill in the XXXX
11         boolean negative = (bits & 0x8000000000000000L) != 0;
12         // Exponent located in bits 52 - 62
13         // Suggested Mask 0x7ff0000000000000L
14         // format Sum( 2^n * e(n)) - 1023 (binary number with bias)
15         // TODO: fill in the XXXX
16         long exponent = ((bits & 0x7ff0000000000000L) >> 52) - 1023L;
17         // Mantissa located in bits 0 - 51
18         // Mask left as an exercise for the reader
19         // format 1 + Sum(2^-(n+1) * m(n) )
20         // TODO: fill in the XXXX
21         long mantissabits = bits & 0xfffffffffffffL;
22
23         double mantissa = mantissaToDecimal(mantissabits);
24         System.out.println((negative ? "-" : "") + mantissa + " x 2^" + exponent);
25     }
26
27     private static double mantissaToDecimal(long mantissabits) {
28         long one = 0x0010000000000000L;
29         return (double)(mantissabits + one) / (double)one;
30     }
31 }
```
