Using this system gives a floating-point number in the form

(★) $$(-1)^s 2^{c-1023}(1+f)$$

Example:

#15 a The following numbers are in 64-bit forma
Find the decimal equivalent

0 1000000 1010 10010011000.....

The leftmost bit is zero => the number is positive. The next eleven digits give the following decimal number

$$c = 2^{10} + 2^3 + 2^1 = 1024 + 8 + 2 = 1034$$

Hence, the exponential part of the number

$$2^{1034-1023} = 2^{11} = 2048$$

The mantissa is

$$f = 1.2^{-1} + 0.2^{-2} + 0.2^{-3} + 1.2^{-4} + 0.2^{-5} + 0.2^{-6} + 1.2^{-7} +$$

$$= \frac{1}{2} + \frac{1}{16} + \frac{1}{128} + \frac{1}{256} = 0.57421875$$