



on IEEE 754 Floating Point

Instructions: For each question, choose the single best answer. Make your choice by clicking on its button. You can change your answers at any time. When the quiz is graded, the correct answers will appear in the box after each question.

1. What does the "IEEE" (as in "IEEE 754 Floating Point") stand for?

- ☐ A. Industry Electrical Evaluation Enterprise
- ☐ B. International Enterprise for Electronics Education
- ☒ C. Institute of Electrical and Electronics Engineers
- ☐ D. Interstate Engineering and Electrification Effort

2. How is 1.234×10^3 normally written?

- ☐ A. .0001234
- ☐ B. 12.34
- ☐ C. 123.4
- ☒ D. 1234

3. Write 0.0345 in scientific notation

- ☒ A. 3.45×10^{-2}
- ☐ B. 3.45×10^{-3}
- ☐ C. $3.45 \times 10^{+3}$
- ☐ D. -3.45×10^2

4. Which part of 1.2345×10^{23} is the **mantissa**?

- ☐ A. 23

- ☐ B. .2345
☐ C. 10
☒ D. 1.2345

5. Write 0.00623 in scientific notation.

- ☒ A. 6.23×10^{-3}
☐ B. $.623 \times 10^{-3}$
☐ C. 6.23×-10^3
☐ D. 6.23×-10^{-3}

6. Which expression of the following is how 1.223×10^{-5} would appear in a source file.

- ☐ A. 1.223e05
☐ B. 1.223EE5
☒ C. 1.223e-5
☐ D. 1.223-5
☐ E. 1.223E^5

7. A 32-bit IEEE 754 float consists of three fields: sign bit, biased exponent, and mantissa. How many bits are in each one?

- ☐ A. 1, 12, 19
☐ B. 2, 15, 15
☒ C. 1, 8, and 23
☐ D. 1, 4, 27

8. Here is a formula that says how the three fields combine to represent a number: $\text{value} = (-1)^S \times 1.M \times 2^{E-127}$

What **biased exponent** would be used to represent 2^2 ?

- ☐ A. 3_{10} , represented as 0000 0011
☐ B. -124_{10} , represented as 1000 0100
☐ C. 128_{10} , represented as 1000 0000
☒ D. 129_{10} , represented as 1000 0001

9. Say that you wish to represent 001.0011_2 as a IEEE 754 float. What is the 23-bit mantissa?

- ☐ A. 10011000000000000000000000000000
- ☐ B. 00110000000000000000000000000000
- ☒ C. 00110000000000000000000000000000
- ☐ D. 11000000000000000000000000000000

10. Say that you wish to represent 010.1011011_2 as a IEEE 754 float. What is the 23-bit mantissa?

- ☒ A. 01011011000000000000000000000000
- ☐ B. 10101101100000000000000000000000
- ☐ C. 01011011000000000000000000000000
- ☐ D. 01010110110000000000000000000000

grade quiz

The number you got right:

Percent Correct:

Letter Grade:



If you have returned here from another page, or have re-loaded this page, you will need to click again on each of your choices for the grading program to work correctly. You may want to press the SHIFT KEY while clicking to clear the old answers.