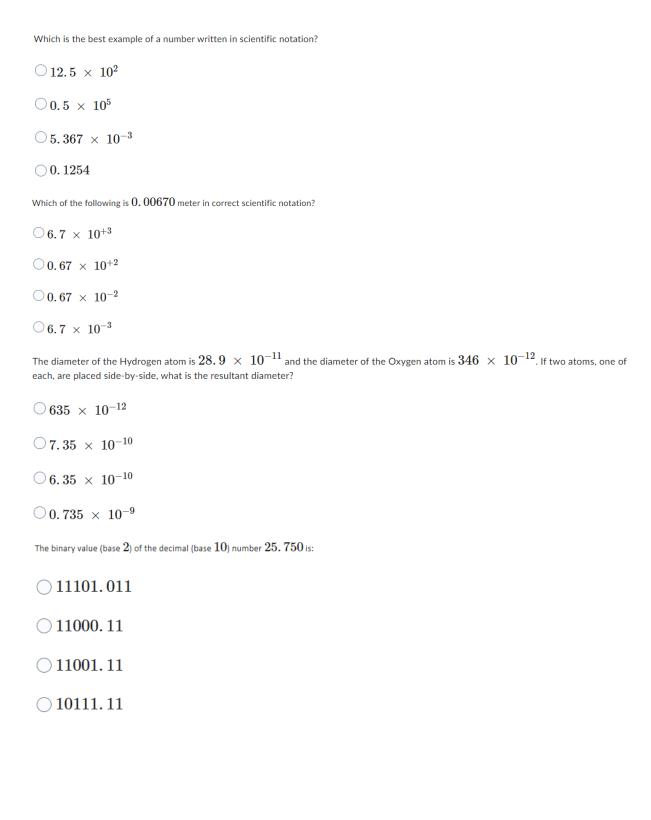
Examples on Scientific Notation and Floating Point Representation



As per IEEE-754 standard, the mantissa of the floating-point representation of $(+3.375)_{10}$ is
\bigcirc 1111 0000 0000 0000 0000 000
○ 1011 1000 0000 0000 0000 000
○ 1011 0000 0000 0000 0000 000
\bigcirc 1. 0110 0000 0000 0000 0000 00
As per IEEE-754 standard, the exponent of the floating-point representation of $(-128)_{10}$ is:
\bigcirc 132
\bigcirc 134
\bigcirc 130
\bigcirc 128
A hypothetical computer stores floating point numbers in 16-bit words. The first bit is used for the sign of the number, the next seven bits are used for the biased exponent, and the next eight bits for the normalized mantissa. The machine epsilon is
\bigcirc 2^{-8}
\bigcirc 2^{-7}
\bigcirc 2^{-1}
\bigcirc 2^{-16}
You wrote a code to find the value of $\sin x$, the code calculated $\sin 0.5 = 0.47916$, (0.5 is in RAD). The Absolute Error (AE) and Relative Error (RE) of the code are:
\bigcirc AE: $2.6~ imes~10^{+4}$ RE: $5.4~ imes~10^{-2}~\%$
\bigcirc AE: $2.6~ imes~10^{-4}$ RE: $5.4~ imes~10^{-2}~\%$
\bigcirc AE: $2.6~ imes~10^{-5}$ RE: $5.4~ imes~10^{-2}~\%$
\bigcirc AE: $0.26~ imes~10^{-3}$ RE: $5.4~ imes~10^{-2}~\%$