

Multiple-Choice Test – Binary Representation of Numbers
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1. $(25)_{10} = (?)_2$
 - (A) 100110
 - (B) 10011
 - (C) 11001
 - (D) 110010

2. $(1101)_2 = (?)_{10}$
 - (A) 3
 - (B) 13
 - (C) 15
 - (D) 26

3. $(25.375)_{10} = (?.?)_2$
 - (A) 100110.011
 - (B) 11001.011
 - (C) 10011.0011
 - (D) 10011.110

4. Representing $\sqrt{2}$ in a fixed point register with 2 bits for the integer part and 3 bits for the fractional part gives a round-off error of most nearly
 - (A) -0.085709
 - (B) 0.0392
 - (C) 0.1642
 - (D) 0.2892

5. An engineer working for the Department of Defense is writing a program that transfers non-negative real numbers to integer format. To avoid overflow problems, the maximum non-negative integer that can be represented in a 5-bit integer word is
 - (A) 16
 - (B) 31
 - (C) 63
 - (D) 64



6. For a numerically controlled machine, integers need to be stored in a memory location. The minimum number of bits needed for an integer word to represent all integers between 0 and 1024 is
- (A) 8
 - (B) 9
 - (C) 10
 - (D) 11

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